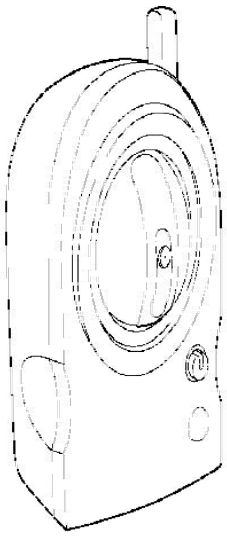
ORDER NO. KMS0507092CE
F5

Service Manual

Network Camera

BL-C30C
(for Canada)



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IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING
If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.
Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.
When this mark does appear, please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

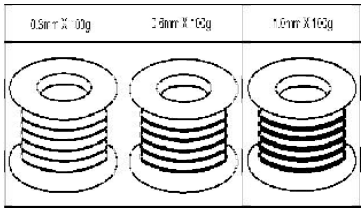
Note:
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.
We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin, (Sn), Silver, (Ag), and Copper, (Cu).
This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB.
For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

- **PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.**
- **PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).**
- **If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.**
- **When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).**

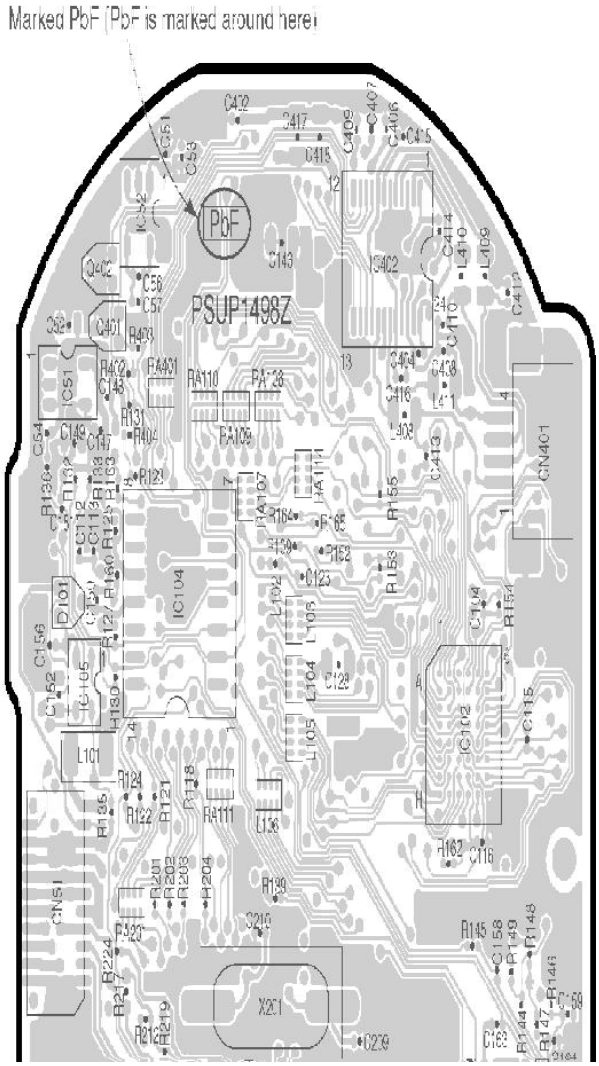
1.1. SUGGESTED PbF SOLDER

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper, (Sn+Ag+Cu), you can also use Tin and Copper, (Sn+Cu), or Tin, Zinc, and Bismuth, (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials. The following lead free (PbF) solder wire gauge are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

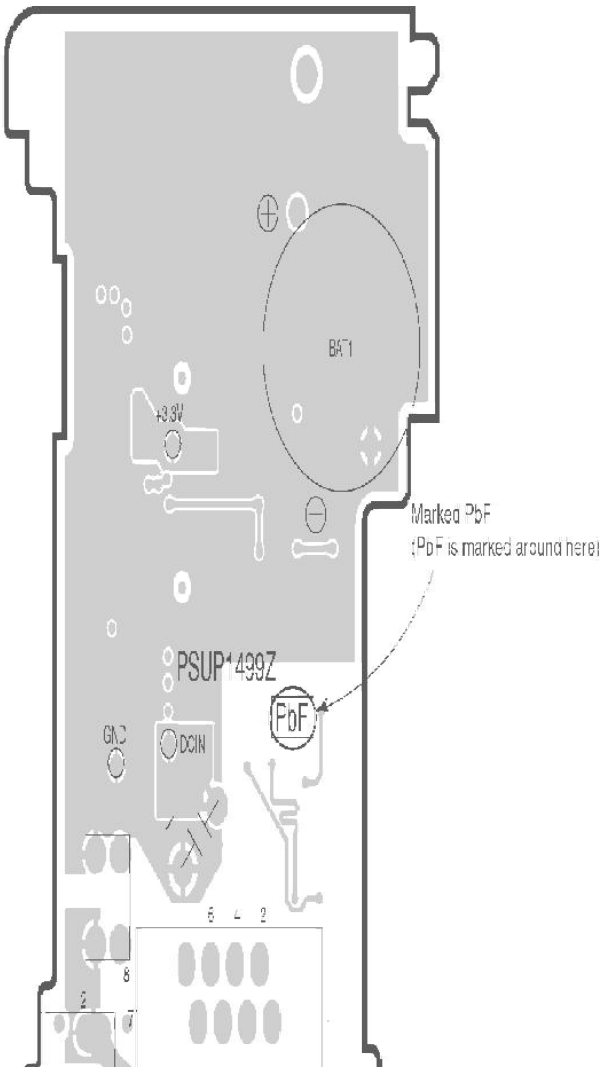


1.2. HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED

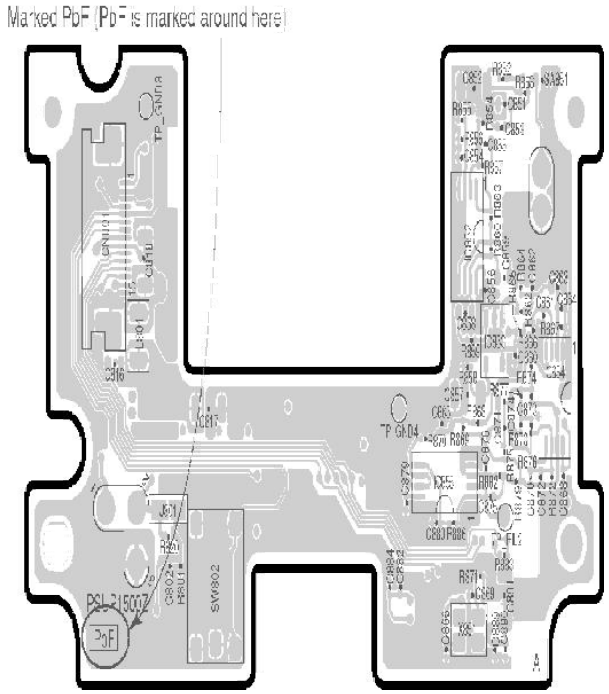
MAIN BOARD



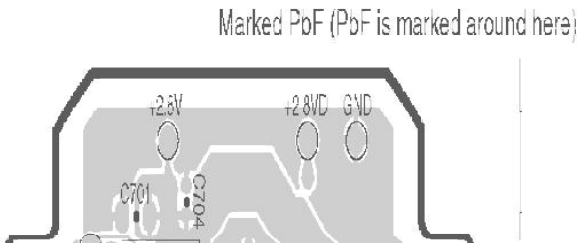
I/O BOARD


BAT1
+3.3V
PSUP1499Z
PbF
DCIN
Marked PbF
(PbF is marked around here)

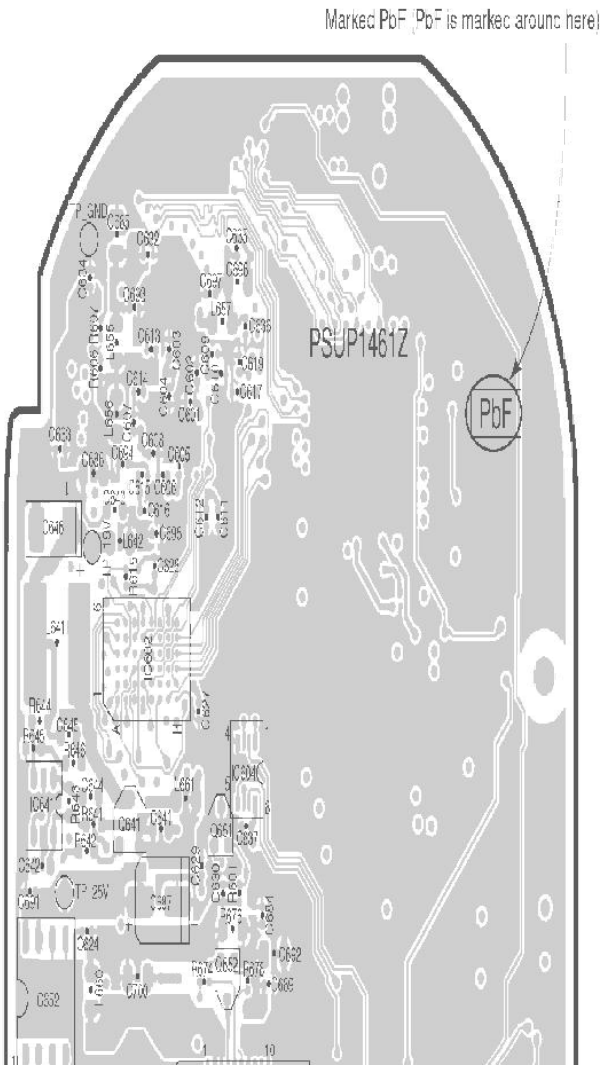
SUB BOARD



LENS BOARD



RF BOARD



2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.
When replacing, the following precautions will help to prevent recurring malfunctions.

1. Cover the plastic parts with aluminum foil.

2. Ground the soldering irons.

3. Use a conductive mat on the work-table.

4. Do not grasp IC or LSI pins with bare fingers.

3. CAUTION

3.1. SAFETY PRECAUTIONS

1. Before servicing, unplug the power cord to prevent an electrical shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, make the following insulation resistance test to prevent a shock hazard.

3.2. BATTERY CAUTION

Danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to following caution:
Disposal or transportation of lithium batteries should be performed by permitted, in accordance with federal, state and local guidelines.
A battery continues to have no transportation limitations as long as it is separated to prevent short circuits and packed in strong packaging.
Commercial firms that dispose of any quantity of lithium cells should have a mechanism in place to account for their ultimate disposition. This is a good practice for all types of commercial or industrial waste.
When the lithium battery is exchanged, the clock settings are cleared. In this case, make clock settings again.
Recommend Type Number:
CR-1632/1HF (BAT1) Manufactured by MATSUSHITA

3.3. TRADEMARKS

- Adobe and Acrobat are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- Ethernet is either a registered trademark or a trademark of Xerox Corporation in the United States and/or other countries.

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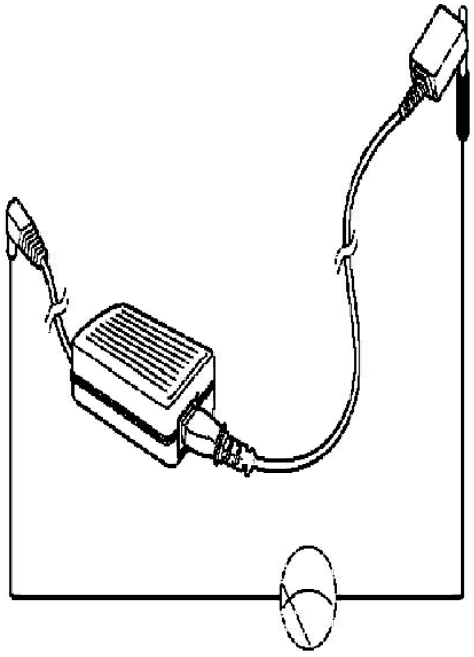
3.4. INSULATION RESISTANCE TEST

1. Unplug the AC power cord and short the two prongs of the plug with a jumper wire.
2. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw threads, etc.

Note:
Some exposed parts may be isolated from the chassis by design. These will read infinity.

3. If the measurement is outside the specified limits, there is a possibility of shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.



Resistance = more than 1MΩ (at DC 500 V)

3.5. POWER CAUTION

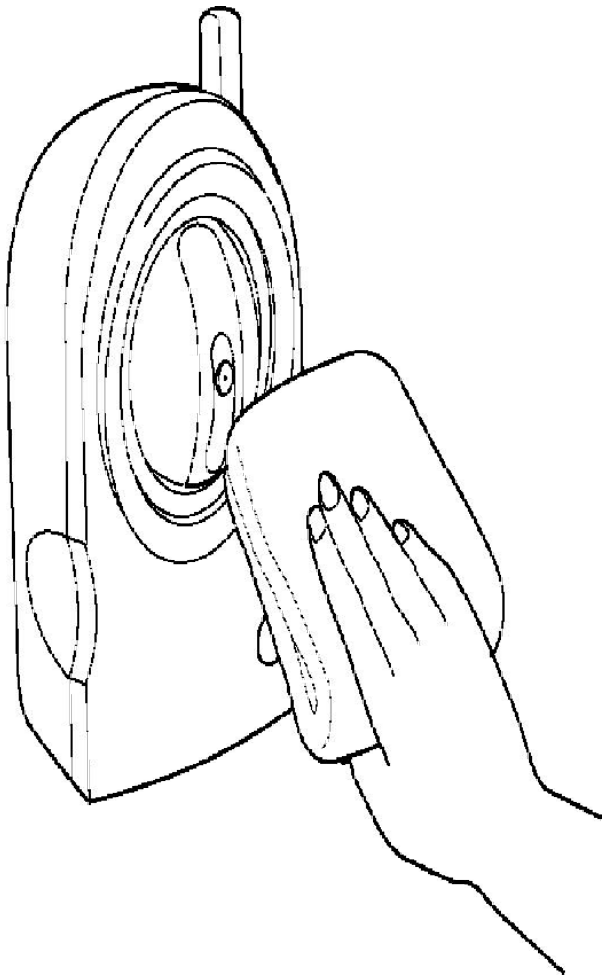
The power socket wall outlet should be located near this equipment and be easily accessible.

3.6. CLEANING

Clean the camera after the camera is turned off.

3.6.1. Cleaning the Main Unit

Clean the unit with a dry and soft cloth.



Note:

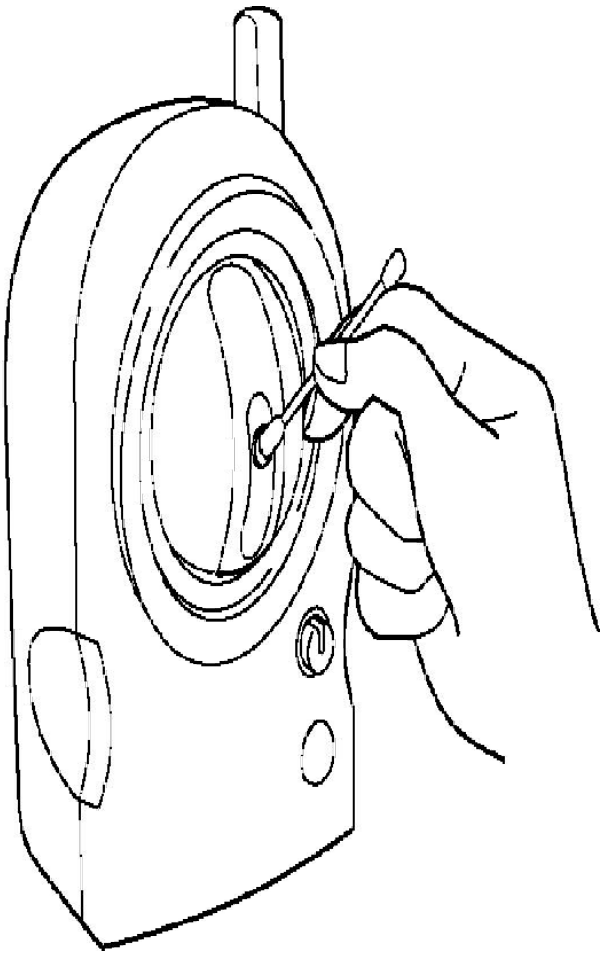
- Do not use alcohol, polishing powder, cleanser, benzine, thinner, wax, petroleum products or hot water to wipe the camera. Also avoid pesticide, glass cleaner or hair spray. They may cause change in shape or color.

- Do not apply pressure to the pan/tilt portion of the camera. Any forced movement can damage the internal mechanism.

- If the pyroelectric infrared sensor has dust on it, it may not detect temperature differences. Keep the pyroelectric infrared sensor clean.

3.6.2. Cleaning the Lens

If the lens has dust on it, the image may be unclear or out of focus.



Note:
Do not touch the lens directly. Fingerprints may cause an unclear image.

4. SPECIFICATIONS

Network Camera

Items	Specifications
Pan/Tilt Angle	Pan: -50° to +50°, Tilt: -40° to +10°
Number of Pixels	1/4-inch CMOS Sensor 320,000 pixels
Illuminance	1-10,000 lx
White Balance	Auto/Manual/Hold
Focus	Fixed 0.5m (20 inches) - Infinity
Caliber Ratio (F No.)	F2.8
Horizontal Viewing Angle	43°
Exposure	Auto

Other Specifications

Items	Specifications
Video Compression	JPEG (3 Levels)
Video Resolution	640 x 480, 320 x 240 (default), 160 x 120
Buffered Image *1	About 250 frames (320 x 240) with time display
Frame rate *2	Max. 7.5 frames/second (640 x 480) Max. 15 frames/second (320 x 240 or 160 x 120)
Supported Protocols	TCP, UDP, IP, HTTP, FTP, SMTP, DHCP, DNS, DDNS, ARP, ICMP, POP3, NTP
Message Transfer Condition	Pyroelectric Infrared Sensor or Timer
Image Transfer Method	SMTP, FTP
Interface	Wired: 10Base-T/100Base-TX Ethernet RJ-45 connector x 1 Wireless: IEEE 802.11b/g (Embedded)
Sensor Detection Method	Pyroelectric Infrared Sensor
Sensor Range	Horizontally About 30°, Vertically About 85°, Distance About 5 m (16.4 feet) (When the temperature is 20 °C [68 °F])
Indicator Display	Power/Network Communication/Camera operation/Ethernet link
Dimension (HWD)	About 98 mm (3.86 inches) x About 74 mm (2.91 inches) x About 73 mm (2.87 inches)
Weight	200 g (0.44 lb.) (Only the unit)
Power Supply	AC adaptor: Input 120 V AC, 60 Hz Output 12 V DC, 750 mA Consumption: About 4.5 W (6.4 W during pan/tilt scan)
Temperature	Operation: +5 °C (+41 °F) to +40 °C (+104 °F) Storage: +0 °C (+32 °F) to +50 °C (+122 °F)
Humidity	Operation: 20%-80% (No Condensation) Storage: 20%-90% (No Condensation)

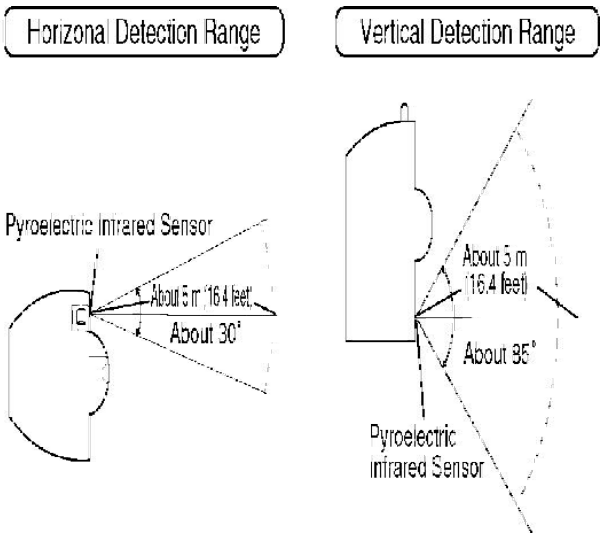
Wireless Specifications

Items	Specifications
Communication mode (Communication Standard)	IEEE 802.11b, 802.11b/g, 802.11g exclusive
Data Transfer Mode	Direct Sequence Spectrum Spread (DS-SS), Orthogonal Frequency Division Multiplexing (OFDM)
Frequency Range	2.412-2.462 GHz
Channels	1-11
Security	WEP (64/128/152 bit), SSID

***1) The maximum number of frames changes depending on the image quality and what object you buffer.**
***2) Frame rate changes depending on the network environment, the PC performance, the image quality and what object you view.**

4.1. ABOUT PYROELECTRIC INFRARED SENSOR

(See Panasonic Network Camera support website at http://panasonic.co.jp/pcc/products/en/netwkcam/ for details about the pyroelectric infrared sensor.)
The sensor (pyroelectric infrared sensor) detects temperature differences with the infrared rays naturally emitted by human or animal bodies. The sensor trigger can acti-vate buffering images to the internal memory or transferring images by E-mail or FTP. The detection range is about 30° horizontally, about 85° vertically and about 5-m (16.4 feet) distance. Since the detection range is easily affected by the environment temperature or how fast the object speed is, consider your mounting location.



Note:

- **The sensor can easily detect temperature differences of objects moving sideways within the detection range, but cannot easily detect objects moving slowly towards the sensor. Mount the camera where the objects often pass across the detection range (see Figure 1).**
- **If the lens position does not match the sensor direction, the buffered or transferred images may not capture the object detected by the sensor (see Figure 2). We recom-mend you to set the pan/tilt range to match the sensor direction or to restrict the user's access level to disable the pan/tilt operation.**

Figure 1

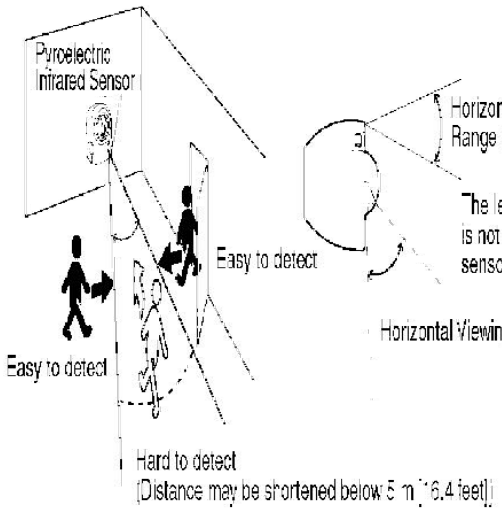
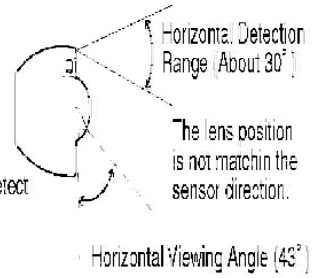


Figure 2



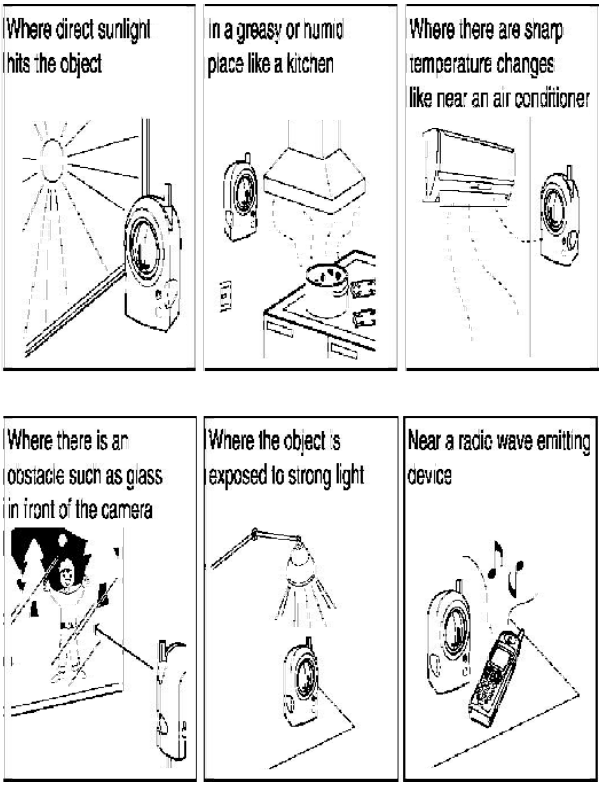
About Location

- If there is no temperature difference between human body and environment like in summer, the sensor may not detect anything.

- If the object is less than about 1 m (40 inches) away from the camera, the camera may detect the object outside the range.

- If the sensor is obstructed, the sensor does not detect anything. Remove the obstacle in front of the sensor.

- The sensor may malfunction in the following areas. Avoid these locations.


Where direct sunlight hits the object
In a greasy or humid place like a kitchen
Where there are sharp temperature changes like near an air conditioner
Where there is an obstacle such as glass in front of the camera
Where the object is exposed to strong light
Near a radio wave emitting device

4.2. COLOR NIGHT VIEW MODE

- Color night view mode (a to-adjusted) enables the camera to display images even in 1 lx ill minance.
- 1 lx is the brightness about 2.5 m (8.2 feet) away from auxiliary fluorescent light. Color night view mode slows down the frame rate, and images may blur when viewing a moving object or using the pan/tilt operation.
- When viewing a dark image, Color Night View mode a tomatically starts. The image will be brighter, but the refresh interval may slow down and image quality may decrease.
- When the camera is aimed at a dark object when in Color Night View mode, specks of white or colored light may appear in the image. This is a characteristic of the CMOS image sensor. The product is not malfunctioning.

5. MAIN FEATURES

Wireless Communication

Network Camera corresponds to the wireless system based on IEEE 802.11b/g. Wireless installation will play an increasing role in flexible mounting.

Communication via Ethernet cable is also available. Encryption establishes the security on the wireless network.

Various remote monitoring features

- Pyroelectric infrared sensor *1 detects temperature differences caused by a human body or animals.

- Detection can let camera transfer images by E-mail or FTP *2.

- Color night view mode (auto-adjusted) enables the camera to display images even in 1 lx ill minance *3.

Monitoring from PC or mobile phone

- The camera images can be monitored over the Internet.

- Pan/Tilt operation can move the lens horizontally from -50° to +50° and vertically from -40° to +10°.

Privacy mode

- Privacy mode hides the lens into the unit to protect privacy.

- Pressing the privacy button on the front of the camera switches privacy mode on or off with a single touch.

	Privacy	Monitoring	Purpose
Privacy feature	On	Disabled	Protecting privacy
Monitoring	Off	Enabled	Remote monitoring

Easy installation using UPnP (Universal Plug and Play)

When connecting the camera with a UPnP enabled router, the camera automatically configures its network settings.

*** Some UPnP enabled routers cannot configure the camera automatically. In this case, the router needs to be configured manually. Ask the router manufacturer how to configure it. See Panasonic Network Camera support website at http://panasonic.co.jp/pcc/products/en/netwkcam/ for more information.**

Supporting Viewnetcam.com service

Viewnetcam.com service allows you to access the camera over the Internet with your favorite domain name (e.g. bob.viewnetcam.com) instead of a global IP address.

*** Viewnetcam.com service is the service for Panasonic Network Camera. See Viewnetcam.com website (http://www.viewnetcam.com) for more information.**

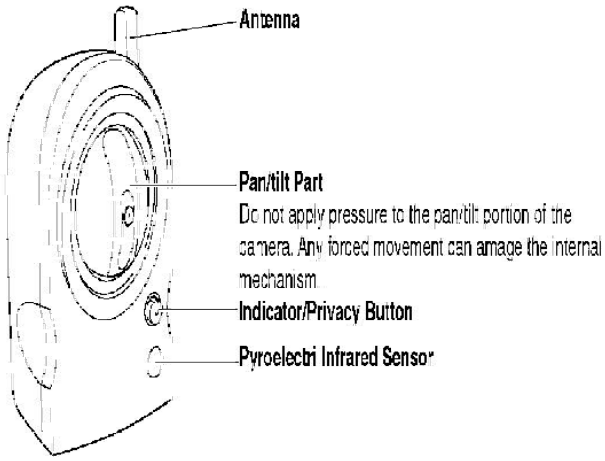
Multi-Language Display

Top page, Single Camera and Multi-Camera page can be displayed in English, French, German, Italian, Spanish, Russian, Simplified Chinese or Japanese. If you select English, Japanese or French, all pages can be changed. But if you select other language, the Setup, Maintenance and Support pages are displayed only in English.

***1 The sensor uses pyroelectric effect. Due to the effects of environment temperature, direct sunlight or air conditioner, it may detect the temperature differences by mistake, or the detection range may be shortened.**
***2 It may take some time to transfer images depending on the network condition.**
***3 1 lx is the brightness about 2.5 m (8.2 feet) away from auxiliary fluorescent light. Color night view mode slows down the frame rate, and images may blur when viewing a moving object or using the pan/ tilt operation.**

6. PARTS LOCATIONS

6.1. FRONT VIEW


Antenna
Pan/tilt Part
Do not apply pressure to the pan/tilt portion of the camera. Any forced movement can amage the internal mechanism
Indicator/Privacy Button
Pyroelectri Infrared Sensor

Privacy Button

To temporarily deactivate the camera, press the privacy button. Once pressed, the button changes from green to red. The video will be temporarily turned off, camera features become unresponsive and the viewed image turns to a gray screen. To return to normal operation, press the privacy button again. It should turn green within a few seconds. To restore video, click [Refresh] on the web browser. Privacy mode can also be controlled from mobile phones or PCs.

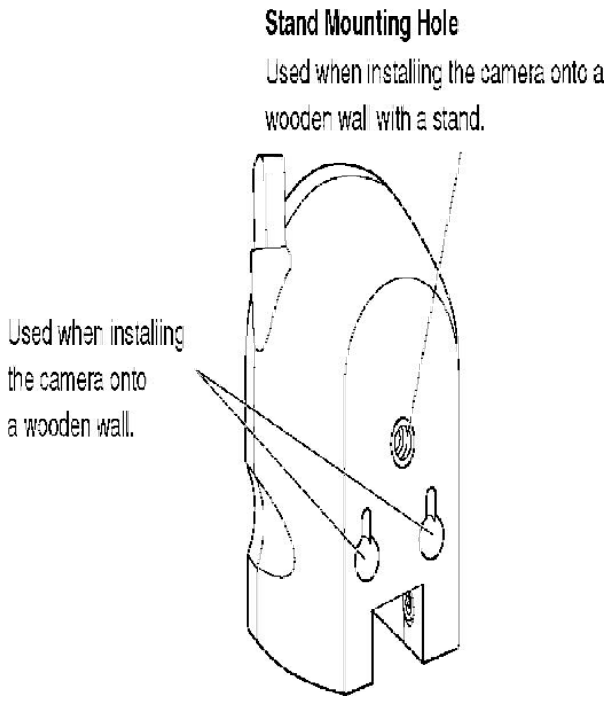
Indicator Display

Power on	Not on the LAN	Orange → Orange blinking
	On the LAN	Orange → Orange and green blinking → Green
Normal Operation *1		Green
Automatic Setup	Setting	Green blinking
	Finished seting	Green
Using DHCP	Getting IP address *2	Orange blinking → Green blinking
	Got IP address	Green
Updating Firmware		Orange blinking
Pressing FACTORY DEFAULT RESET button		Orange blinking → Turning off (The camera restarts about 1 minute later.)
UPnP Failure *3		Orange blinking (About a 2-second interval)
In Privacy Mode		Red
Internal Failure		Red blinking

*1) The indicator turns orange if the camera is not connected to the LAN.
*2) The indicator blinks orange if the camera is not connected to the LAN.
*3) When the sensor is active, the interval between blinks may increase.

6.2. BOTTOM VIEW

6.3. REAR VIEW


Stand Mounting Hole
Used when installing the camera onto a wooden wal with a stand.
Used when installing the camera onto a wooden wall.

Note:
If the ceiling is made of wood, the camera can be installed on the ceiling. See Panasonic Network Camera support website at http://panasonic.co.jp/pcc/products/en/netwkcam/ for details.

7. CONNECTING YOUR NETWORK CAMERA

7.1. PREPARATION

Prepare the following before connecting the Network Camera.

- Set up software (Setup CD-ROM)
- PC to fulfill the system requirements.
- Ethernet Router or Wireless Router for LAN Connection.
- Ethernet cable (two pieces of Category 5 straight cable).

SYSTEM REQUIREMENTS
Your PC (Personal Computer) and network must meet the following technical specifications for the camera to work properly.

Item	Description
Operating System	Microsoft ® Windows ® XP Microsoft ® Windows ® 2000 Microsoft ® Windows ® Me Microsoft ® Windows ® 98SE
CPU	Pentium ® III (500 MHz or greater is recommended.)
Protocol	TCP/IP protocol (HTTP, TCP, UDP, IP, DNS, ARP, ICMP)
Interface	10/100 Mbps network card installed
Web Browser	Internet Explorer 6.0 or later (Not included on the Setup CD-ROM)

Note:
See Panasonic Network Camera support website at http://panasonic.co.jp/pcc/products/en/netwkcam/ for the latest information about web browser.

Abbreviations

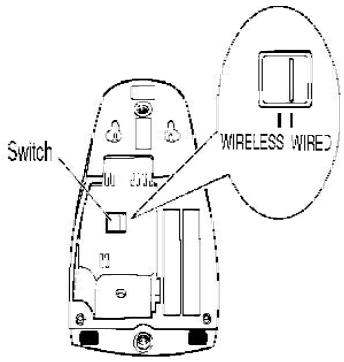
- UPnP ™ is the abbreviation for Universal Plug and Play.

7.2. CONNECT THE CAMERA TO YOUR ROUTER

Connect the camera to your router with an Ethernet ® cable to set up the camera.

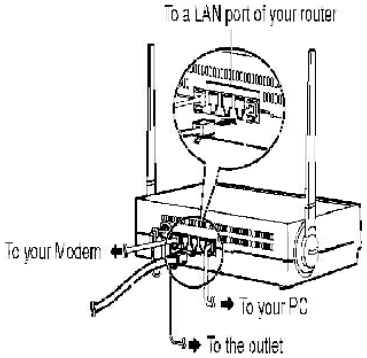
- Before you begin the installation, the UPnP feature in your router needs to be enabled. Usually, the default setting disables this feature. For more info, please visit, http://panasonic.co.jp/pcc/products/en/netwkcam/technic/rtr_setup/ or contact your router's manufacturer.
- These instructions assume your PC is already connected to the Internet and your home network includes a router that is UPnP (Universal Plug and Play) compliant.
- The camera will be connected to your router using a "straight" Cat5 network cable (customer-provided).

1. Confirm that the switch on the bottom of the camera is set to wired.



<Bottom>

2. Connect the Ethernet cable to your router.

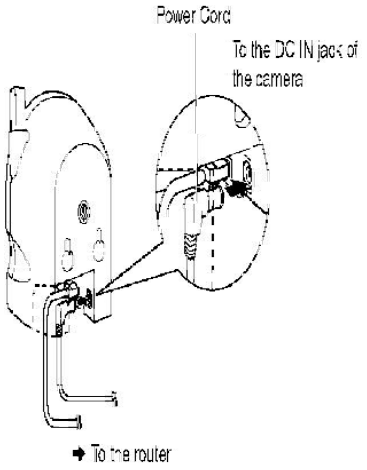


3. Connect the Ethernet cable to the camera.

7.3. TURN THE CAMERA ON

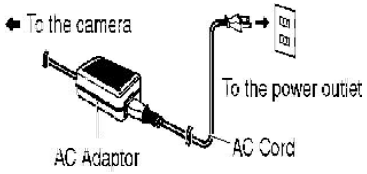
Inserting the AC adaptor to the outlet powers up the camera.

1. Connect the power cord from the AC adaptor to the DC In jack.



2. Connect the AC plug of the AC cord to the power outlet.

- **When you operate the camera, the power outlet should be near the camera and easily accessible.**
- **Use only specified Panasonic AC adaptor PQLV202 (Order No.PQLV202Y).**



3. After the lens moves (pan/tilt operation), confirm that the indicator lights green after a minute.

- **If the indicator does not light green, see page 15 and 16 of the Installation/Troubleshooting.**
- **A noise can be heard during pan/tilt operation. This is normal.**

7.4. SETUP THE CAMERA

Important

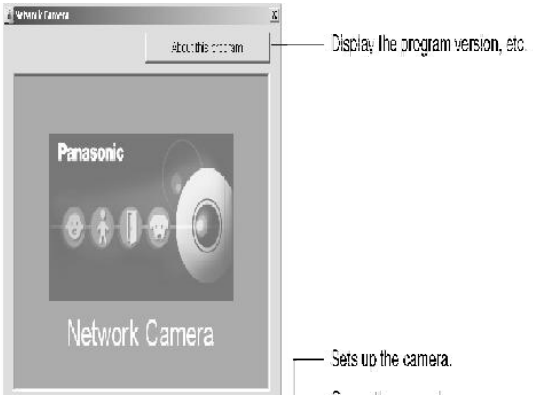
- To avoid any possible problems, temporarily disable any firewall or antivirus software.

- This procedure explains installation of the camera on the same network that your PC is part of.

- Before proceeding, close your web browser.

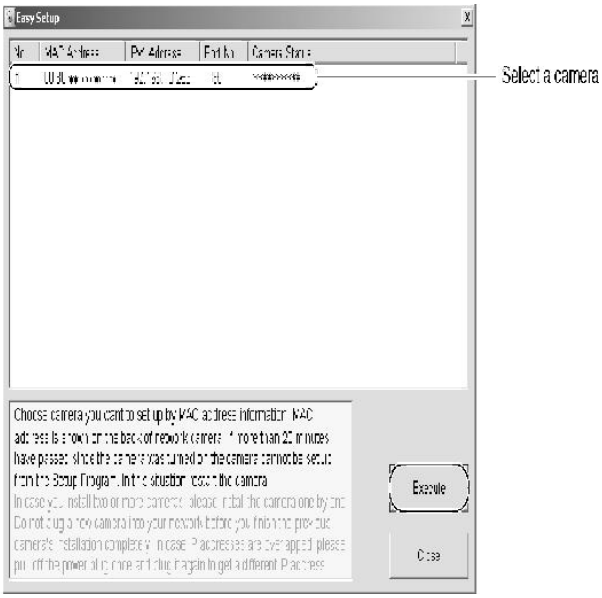
1. Insert the Setup CD-ROM into the CD-ROM drive of the PC.
(If the Network Camera Setup window is not displayed automatically, double-click "Setup.exe" file on the Setup CD-ROM.)

2. Click [Camera Setup].



3. Select the camera to set up and click [Execute].

- This program searches for the cameras that are connected to the router and displays the MAC Addresses, IP addresses and Port Numbers.



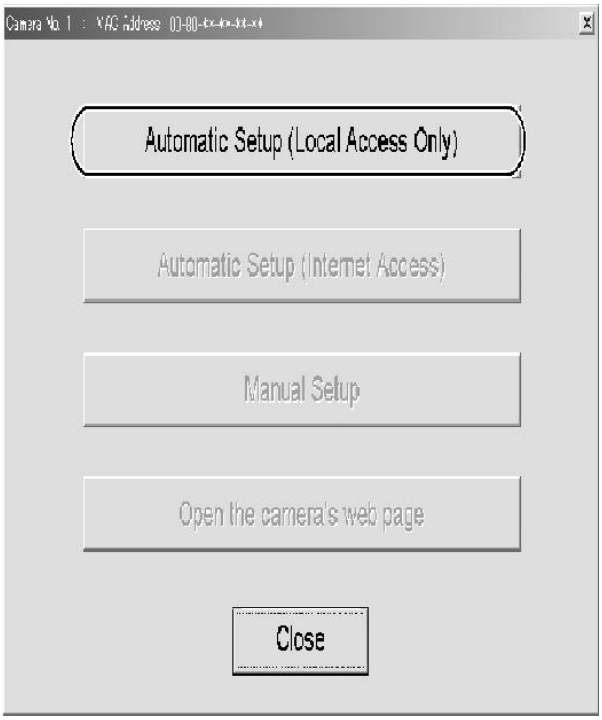
- When searching for multiple cameras, the cameras can be identified with the MAC Addresses labeled near the Ethernet (LAN) port of the cameras.

Note:

- If more than 20 minutes have passed since the camera was turned on, the camera cannot be set up from the Setup Program. In this situation, restart the camera.

- The Setup Program may not list any cameras due to your firewall or antivirus soft-ware settings on your PC. If you cannot disable your firewall or antivirus software, you can set up the camera entering the camera MAC address.

4. Click [Automatic setup (Local Access Only)].



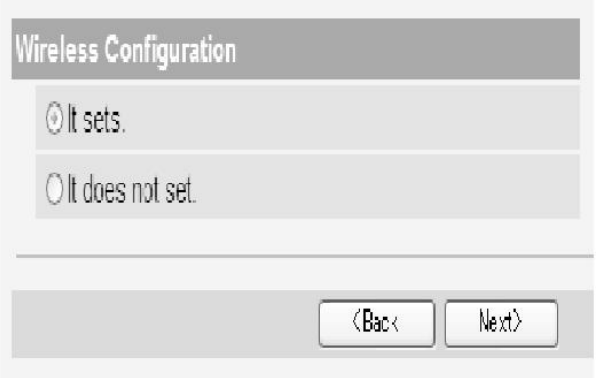
- For the first time installation or after pressing the Factory Default Reset button, only [Automatic Setup (Local Access Only)] can be selected. To set up the camera with Static or DHCP settings, after performing the [Automatic Setup (Local Access Only)], run the Setup Program again and select [Manual Setup].

5. Enter the user name and password, and click [Save].

6. The Enter Network Password window is displayed. Enter the user name and password that were set, and click [OK].

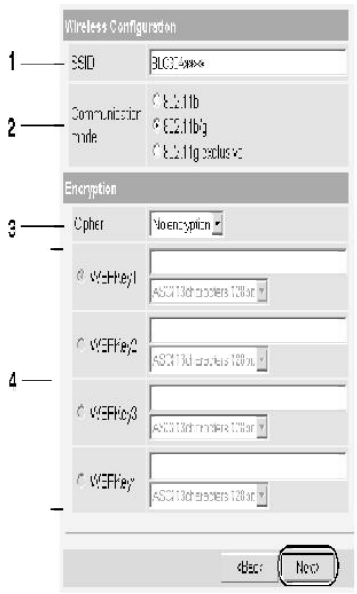
7. To set the Wireless Configuration, check [Enable] and click [Next>].

- When [Disable] was selected, skip to step 9.



- The Wireless Configuration can also be set at [wireless] in the Setup Page.

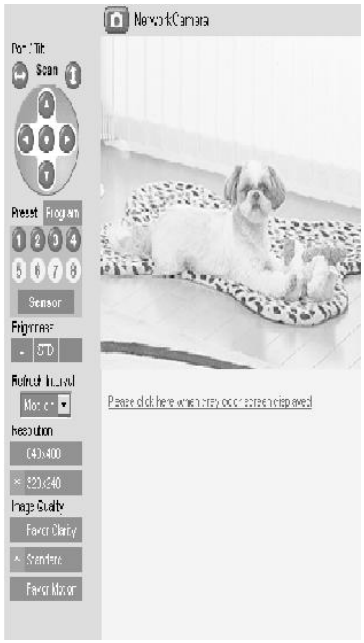
8. Set the Wireless Configuration.



1. **Set the SSID.**
   Set the name of the wireless network.
2. **Select the Communication mode.**
   They are IEEE Communication modes. Select the same Communication mode as that of the router to which the camera is connected.
   802.11b (IEEE802.11b) : Only 802.11b wireless router can be connected.
   802.11b/g (IEEE802.11g) : Either 802.11b or 802.11g router can be connected.
   802.11g exclusive (IEEE802.11g) : Only 802.11g router can be connected.
3. **Select encrypting or not encrypting.**
   Selecting WEP can encrypt data within the wireless LAN.
   WEP: Encrypting (setting WEP) makes it difficult for unauthorized users to read data within the wireless LAN, even if they can receive it. To encrypt data, set the same encryption key to every terminal within the wireless LAN. There are 3 kinds of encryption key: 64 bit, 128 bit and 152 bit. Security level of encryption increases in

9. When the Single Camera page is displayed, the setup is completed.

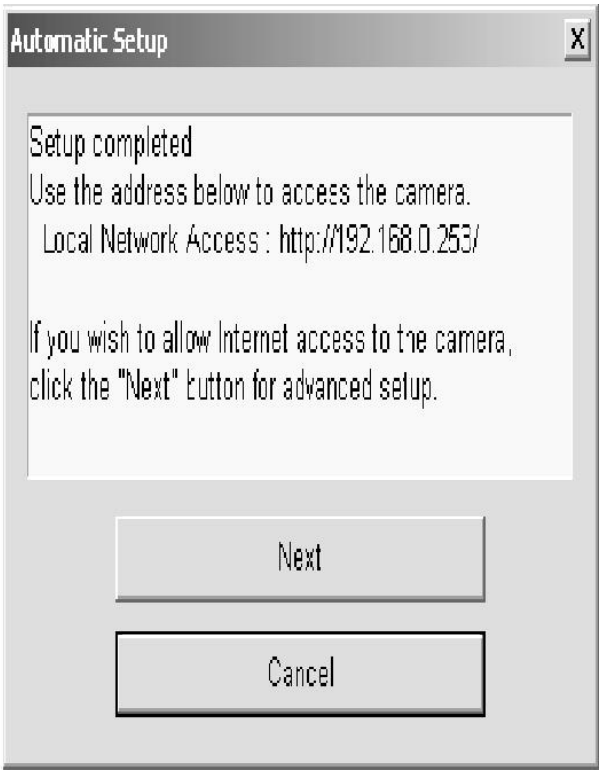
- If Security Warning window is displayed to install ActiveX Controls, click [Yes].



- The image is a simulated screen image.

Note:
Check [Every visit to the page] for "Temporary Internet files" on your web browser. If it is not checked, the camera may display old images.

9. Click [Next] to set up the Internet access to the camera and go to step on the next page..


Automatic Setup
X
Setup completed
Use the address below to access the camera.
Local Network Access : http://192.168.0.253/
If you wish to allow Internet access to the camera,
click the "Next" button for advanced setup.
Next
Cancel

- Click [Cancel] and go to 7.6. CONFIRMING THE WIRELESS LANSETUP , if you mount the camera.

7.5. TO SET UP INTERNET ACCESS TO THE CAMERA

1. Select the camera on the camera list to set up the Internet access and click [Execute].

- This program searches for the cameras that are connected to the router and displays the MAC Addresses, IP addresses and Port Numbers.

- When searching for multiple cameras, the cameras can be identified with the MAC Addresses labeled near the Ethernet (LAN) port of the

cameras.

Note:
If more than 20 minutes have passed since the camera was turned on, the camera cannot be set up from the Setup Program. In this situation, restart the camera.

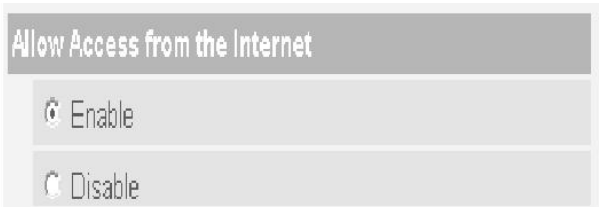
2. Click [Automatic Setup (Internet Access)].

Camera No. 1 : MAC Address 00-80-
Automatic Setup (Local Access Only)
Automatic Setup (Internet Access)
Manual Setup
Open the camera's web page

- For the first time installation or after pressing the Factory Default Reset button, only [Automatic Setup (Local Access Only)] can be selected. To set up the camera with Static or DHCP settings, after performing the [Automatic Setup (Local Access Only)], run the Setup Program again and select [Manual Setup].

3. The Enter Network Password window is displayed. Enter the username and password that were set, and click [OK].

4. To enable access over the Internet, check [Enable]. Not to enable access over the Internet, check [Disable]. And click [Next>].



- If you select [Disable], skip to step 8.

Registration with the "Viewnetcam.com FREE DDNS service"
By registering with the Viewnetcam.com FREE DDNS service, you can create a personalized web address at which your camera's live video can always be found on the Internet. For detailed information, access "http://www.viewnetcam.com".

5. To register with the "Viewnetcam.com FREE DDNS service", check [Register with Viewnetcam.com] and click [Next>].

- When [Do not register with Viewnetcam.com] was selected at step 5, skip to step 8.

6. The Enter Network Password window is displayed. Enter the user name and password that were set, and click [OK].

7. After a while, the "Viewnetcam.com FREE DDNS service" website is displayed. Follow the displayed instructions for registration.

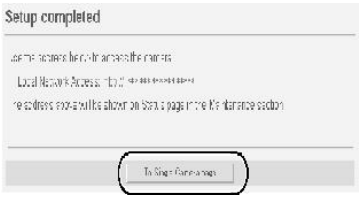
- If the message "Failed to configure the router's Port Forwarding by UPnP" is displayed, your router may not support UPnP or UPnP is not enabled. Enable your router's UPnP or set Port Forwarding manually following the router's manual and try Automatic Setup again. For more information about setting up a router, refer to the Panasonic Network Camera support web-site at http://panasonic.co.jp/pcc/products/en/netwkcam/technic/rtr_setup.

- If the message "Failed to register with Viewnetcam.com." is displayed, con-firm that the router is connected to the Internet.

8. When "Setup complete" is displayed, click [To Single Camera page].

- When [Enable] was selected at step 4.

- When [Disable] was selected at step 4.



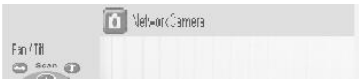
Note:

- The port number must be specified at the end of camera URL.
For example
Using port 80: http:///(Cameraname).viewnetcam.com or http:///IP Address
Using any other port: http:///(Cameraname).viewnetcam.com:Port Number or http:///IP Address:Port Number

- The URL for the local network access may be different from the one set up on the previous page.

9. When the Single Camera page is displayed, the setup is completed.

- If Security Warning window is displayed to install ActiveX Controls, click [Yes].



- The image is a simulated screen image.

Note:
Check [Every visit to the page] for "Temporary Internet files" on your web browser. If it is not checked, the camera may display old images.

7.6. CONFIRMING THE WIRELESS LANSETUP

After setting each item for the wireless LAN, confirm that the camera works correctly.

1. **Unplug the Ethernet cable and turn off the power (disconnect the AC plug).**
2. **Set the switch on the bottom of the camera to wireless.**
3. **Turn on the power by connecting the AC plug to the power outlet.**

   - The camera switches from wired to wireless.
4. **Start up the web browser on the PC.**
5. **Enter "http://IP address (or URL):Port No." in the address field and press [Enter].**
   (When port number is 80 (default), you do not need to enter port number.)

   - When the following Top Page is displayed, the wireless LAN setup is successful.

- If the Top Page was not displayed, the settings for the camera are not identical with those for the router. Check the settings by using wired connection.
If the settings are correct and you use a proxy server, set the web browser not to access the proxy server.
If the Top Page is not displayed even after trying these methods, contact the retailer.
- It takes about 1 minute for the new settings to be effective.
- It is not possible to access the camera simultaneously by both wired and wireless connection.
- Enter both the MAC addresses for the camera itself and the camera's wireless module to enable the MAC address filtering

feature on the wireless router. The wireless module MAC address is one value higher than the camera MAC address.

8. DISASSEMBLY INSTRUCTIONS

8.1. HOW TO REMOVE RF BOARD

MAC address label caution
When you replace the main board, you must also attach the new MAC address label(included with the main board).Attach the new MAC address label to the unit by placing over the old MAC address label. Make sure the old address cannot be seen.
Throw away the old main board. It cannot be reused.
(If the MACaddress of the old main board is already registered via DDNS and thenused in a different camera, the camera cannot be used with DDNS service.)

1. Remove two Screws (A). And remove the Cabinet Cover.	

2. Remove Screw (B) and Antenna Cable.	

3. Remove Antenna Cable from RF Board, and remove RF Board from Cabinet body.	

8.2. HOW TO REMOVE MAIN BOARD AND I/O BOARD

- 1-3 are the same as 8.1. HOW TO REMOVE RF BOARD.

4. Remove Screw (B).	

5. Remove two Screws (B). **6. Remove Antenna, Motor Cable and Antenna Cable.** **7. Remove Main Flat Cable.**	
8. Remove two Screws (B). **9. Remove Main Board and I/O Board from Cabinet Body.**	

10. Remove Sub Flat Cable from Main Board. **11. Remove Main Board from I/O Board.**	

8.3. HOW TO REMOVE SUB BOARD

- 1-3 are the same as HOW TO REMOVE RF BOARD.

- 4-9 are the same as HOW TO REMOVE MAIN BOARD AND I/O BOARD.

10. Remove six Screws (B). **11. Remove Eye Block, Pan Motor Unit, Pan Motor Angle, Connect Angle and Washer.**	

12. Remove two Screws (B). 13. Remove Sub Flat Cable from Sub Board.	

8.4. HOW TO REMOVE LENS UNIT

- 1-3 are the same as 8.1. HOW TO REMOVE RF BOARD.
- 4-9 are the same as 8.2. HOW TO REMOVE MAIN BOARD AND I/O BOARD.
- 10, 11 are the same as 8.3. HOW TO REMOVE SUB BOARD.

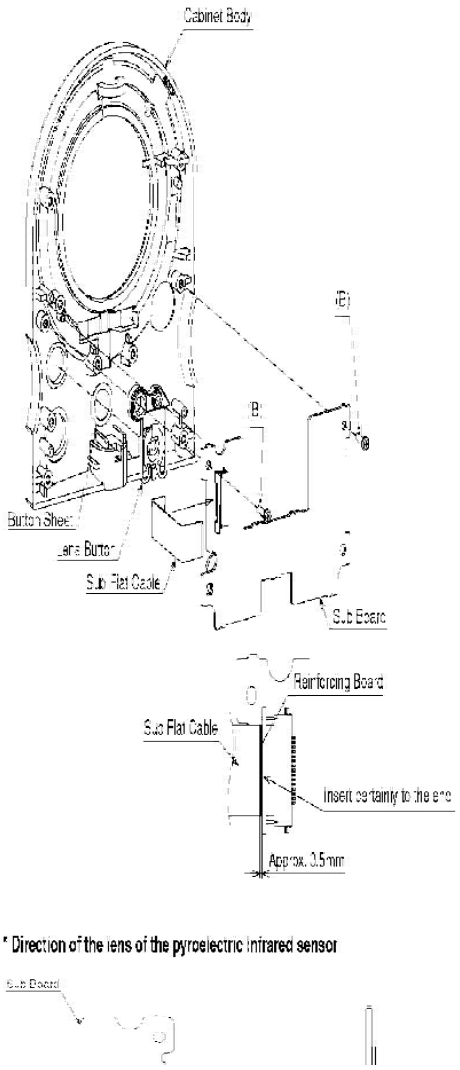
12. Remove two Screws (B). 13. Remove Tilt Motor Unit from Eye Block. 14. Remove two Spacers, Pan Gear and Pan Motor Unit from Eye Block.	

15. Remove two Screws (B). **16. Remove Eye Left Cover, Eye Center Cover and Eye Right Cover from Eye Block.**	

9. THE CAUTIONS AT THE TIME OF ASSEMBLY

9.1. SUB FLAT CABLE INSERTION INSTRUCTION

Put together Lens Button, Button Sheet, and Sub Board in a Cabinet Body, and fix with screws (B).
Insert Sub Flat Cable into connector.

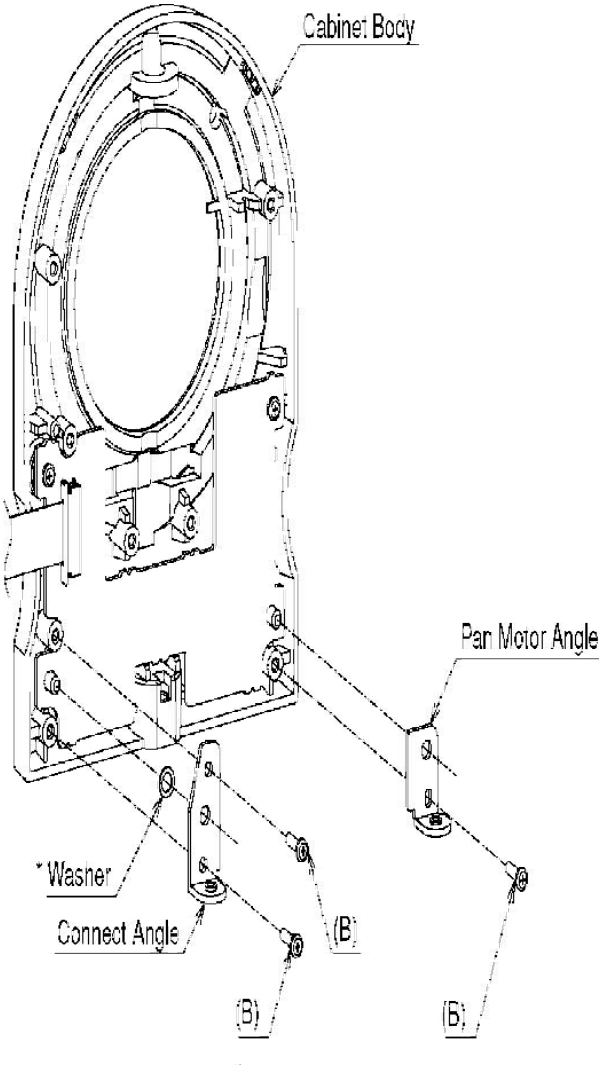


9.2. ASSEMBLING INSTRUCTION OF WASHERS

Attach Pan Motor Angle, Connect Angle, and washer to Cabinet Body and fix with screws (B).

Caution

After work, check visually that a spring washer is attached without fail.

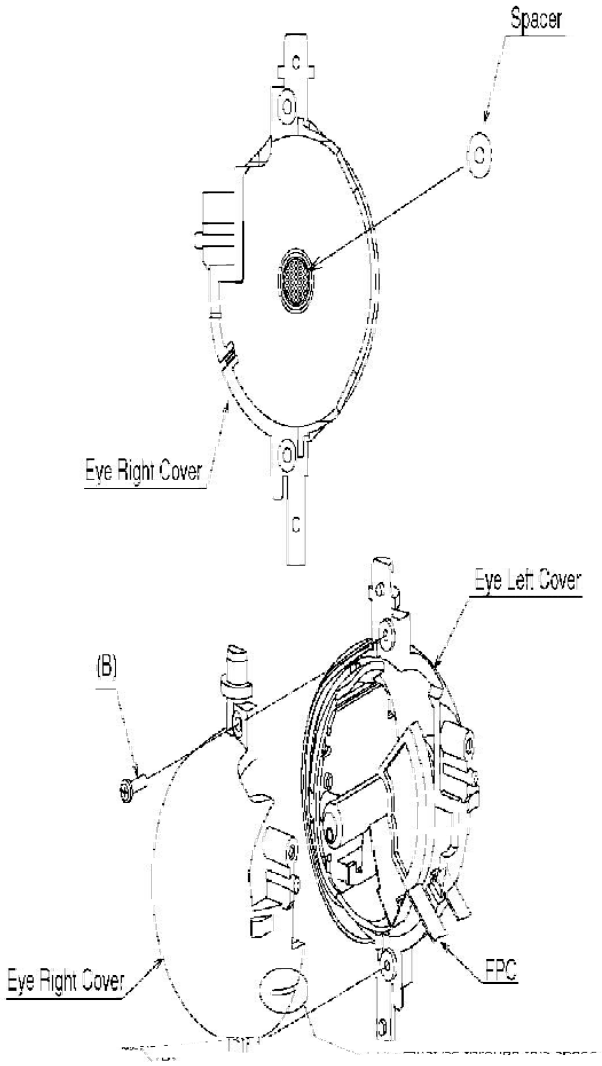


9.3. ASSEMBLING INSTRUCTION OF EYE BLOCK

Insert Spacer into the boss of Eye Right Cover, then fix with Eye Left Cover and Screws (B).

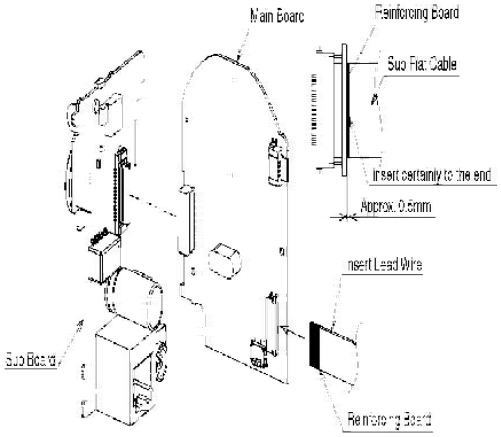
Caution

After inserting the Spacer, the Lens Unit should be in the Eye Right Cover position for assembly to prevent the Spacer from dropping out.

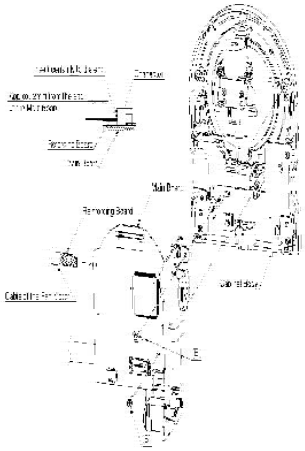


9.4. ASSEMBLING INSTRUCTION OF PAN MOTOR UNIT CABLE

1. **Insert the Sub Flat Cable into the Main Board, and mount the Main Board and the Sub Board to the Cabinet Body and fixing it with Screws.**
2. **Insert the Cable of the Pan Motor to the Jig Board and turn on the power to of the board to check the home position operation of the Pan. If a step-out occurs during the home position operation, it is judged as being NG. After the check, take out the Pan Motor Cable.**

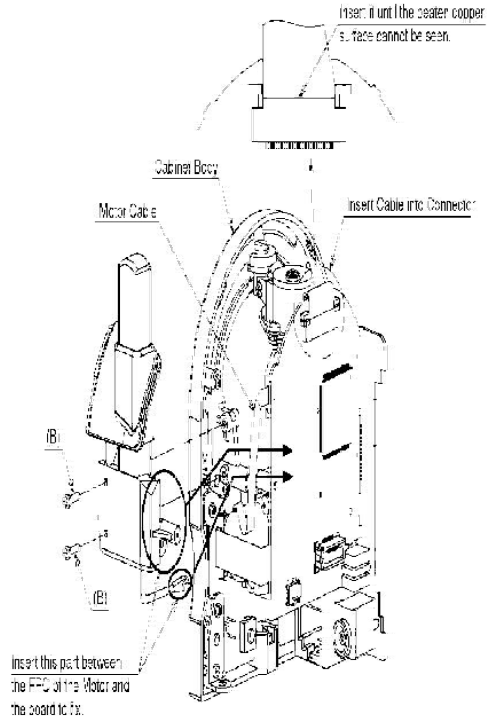


3. Insert the Cable of the Pan Motor to the Main Board



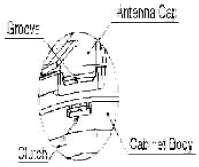
9.5. ASSEMBLING INSTRUCTION OF ANTENNA

Mount the Antenna to the Cabinet Body and fix it with Screws (B).



Note:

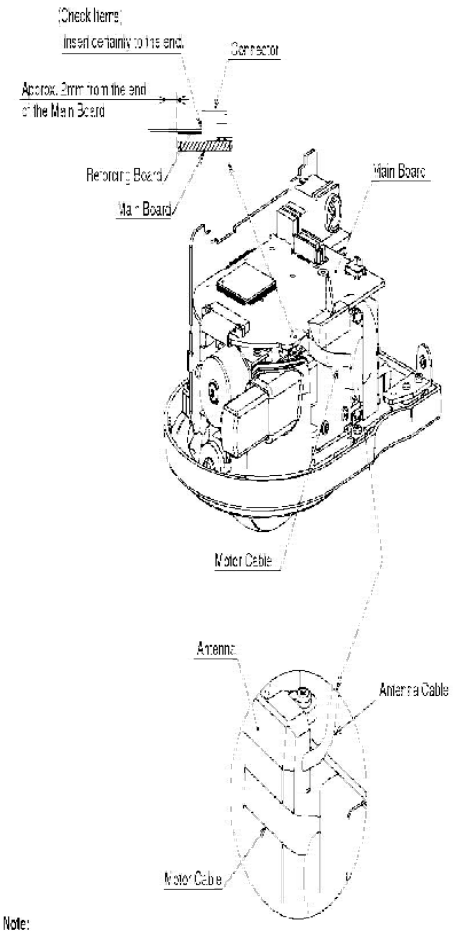
Before fixing the Antenna to the Cabinet Body, check that the cutout of the Cabinet Body fits to the groove of the Antenna Cap securely.



9.6. ASSEMBLING INSTRUCTION OF ANTENNA CABLE

1. Check that the Motor Cable is inserted properly.

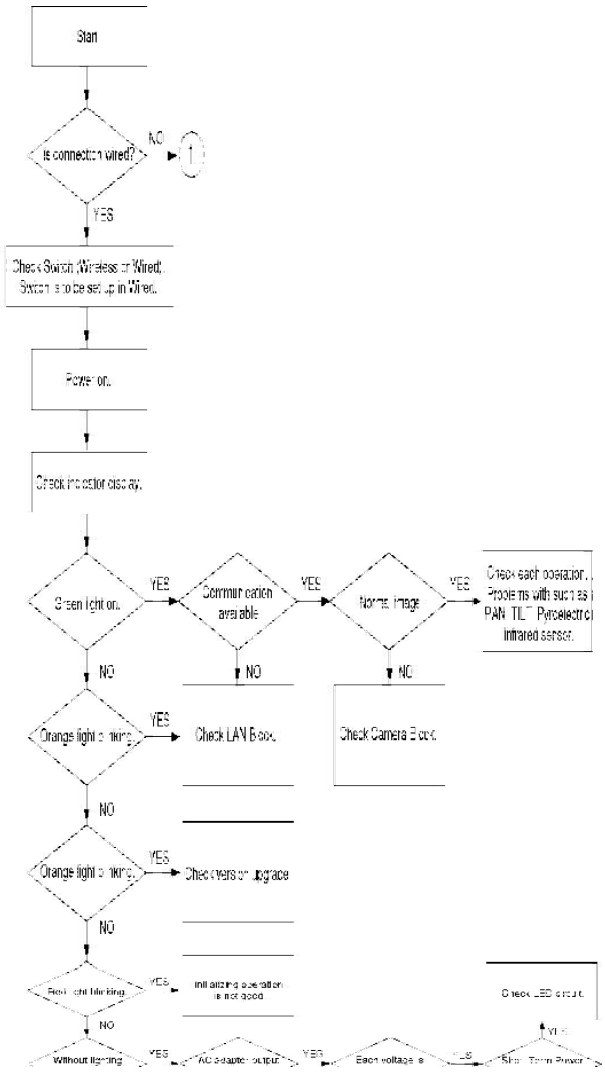
2. Check the alignment of the Motor Cable.



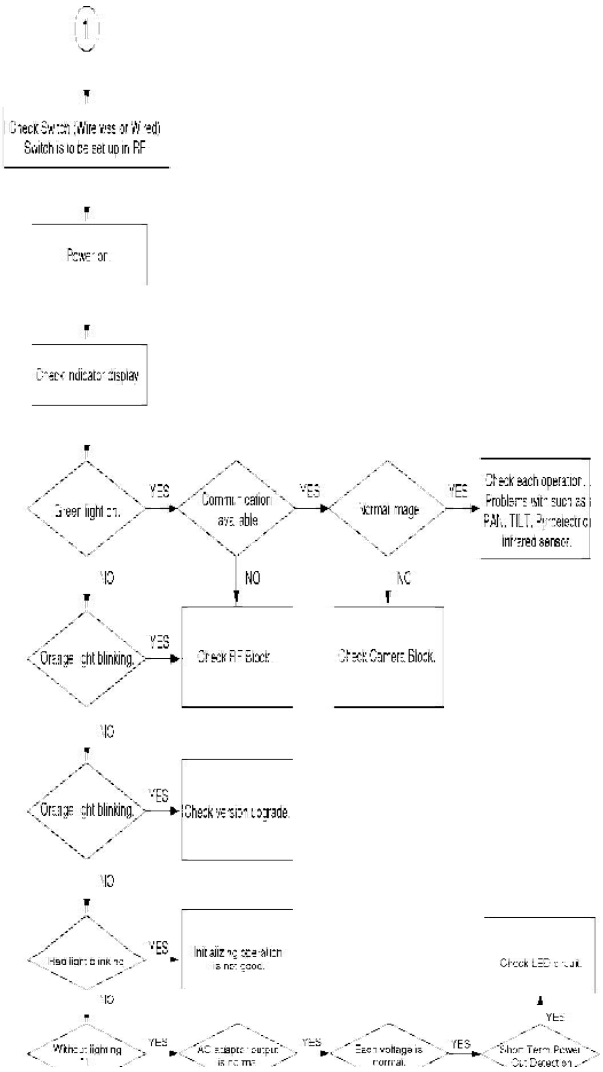
Note:
Check that the position of the Motor Cable and the Antenna Cable is as shown above.

10. TROUBLE SHOOTING

10.1. STARTING UP OPERATION

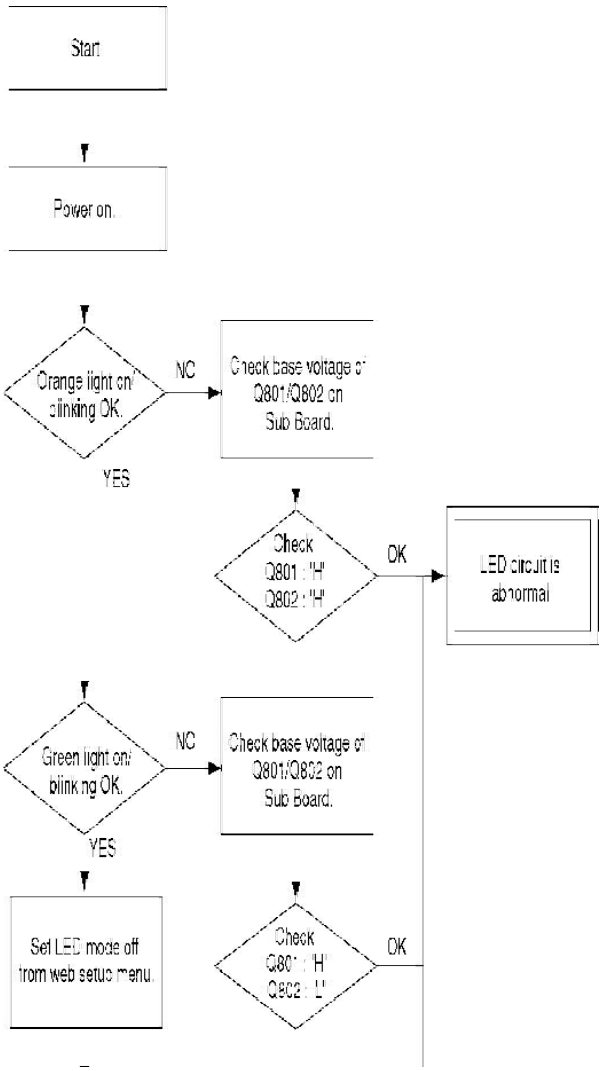


***1 It does not turn on, when LED mode is "OFF" on web setup menu.**



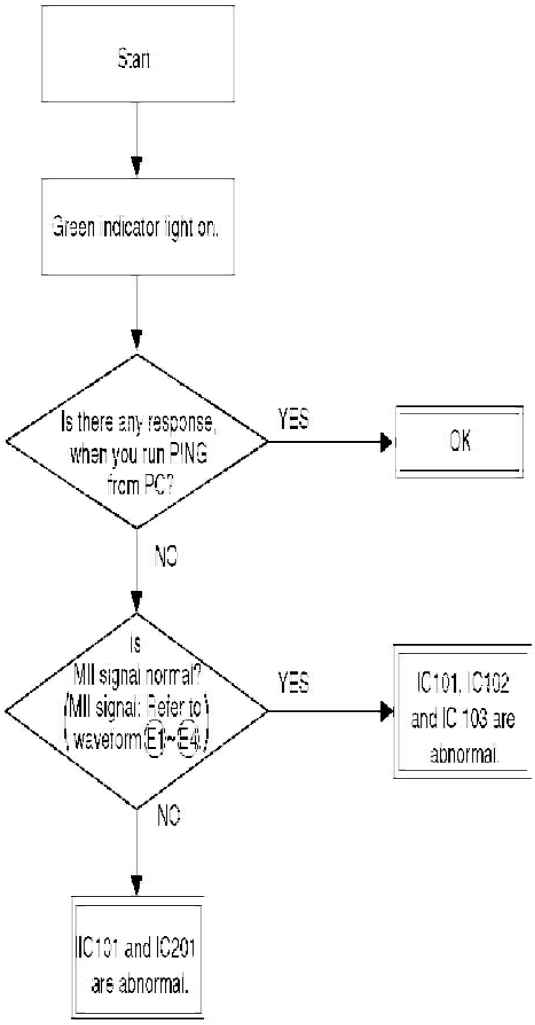
***1 It does not turn on, when LED mode is "OFF" on web setup menu.**

10.2. LED CIRCUIT CHECK

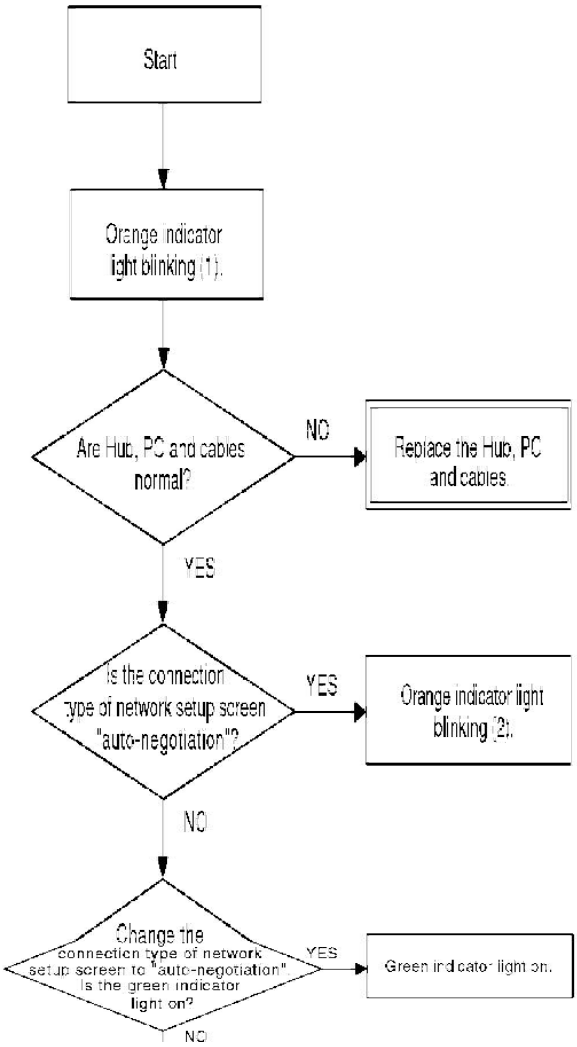


10.3. LAN BLOCK CHECK

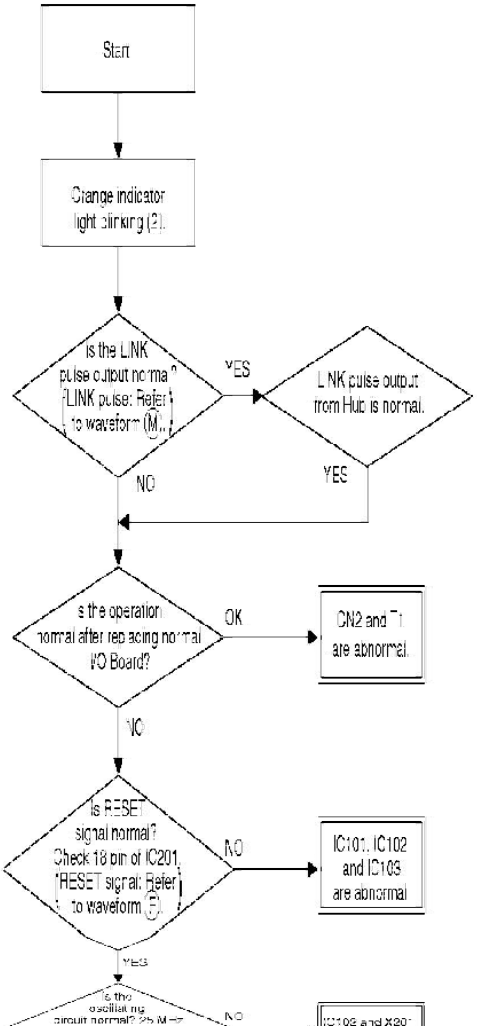
10.3.1. Green Light On



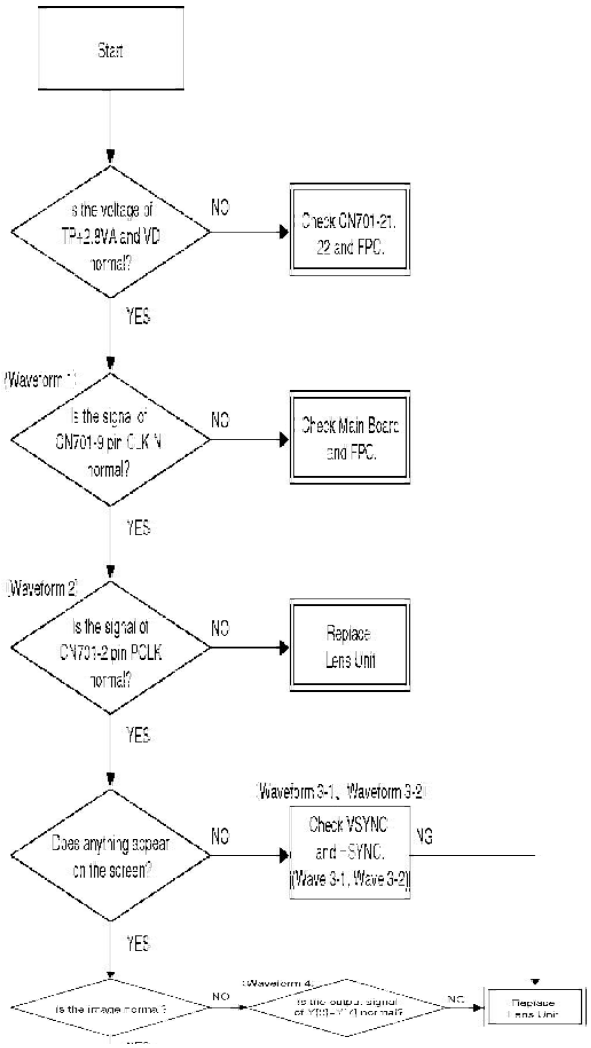
10.3.2. Orange Light Blinking (1)


Start
Orange indicator light blinking (1).
Are Hub, PC and cables normal?
NO
Replace the Hub, PC and cables
YES
Is the connection type of network setup screen "auto-negotiation"?
YES
Orange indicator light blinking (2).
NO
Change the connection type of network setup screen to "auto-negotiation". Is the green indicator light on?
YES
Green indicator light on.
NO

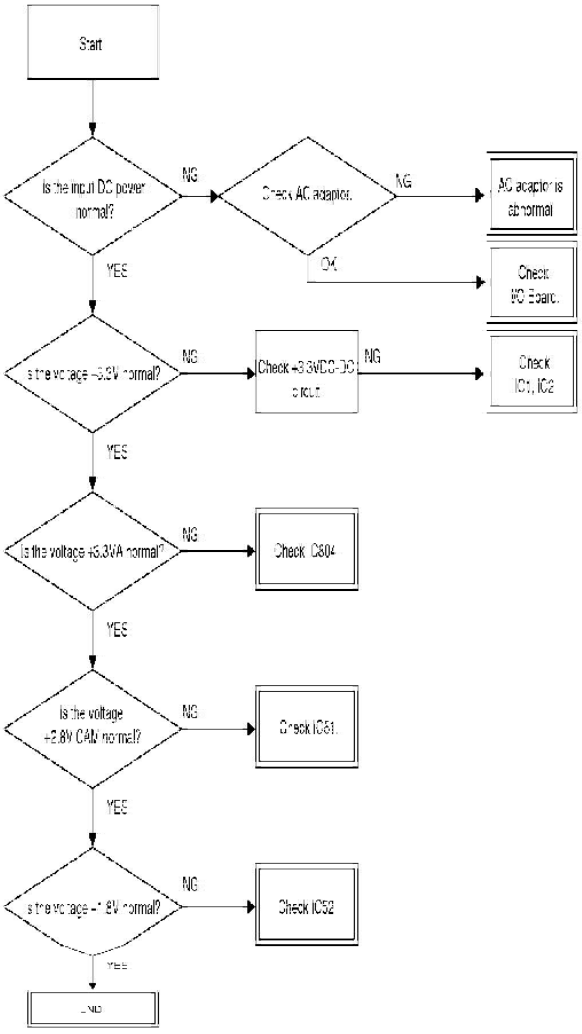
10.3.3. Orange Light Blinking (2)


Start
Change indicator light blinking (2).
Is the LINK pulse output normal? (LINK pulse: Refer to waveform (M).)
YES
LINK pulse output from Hub is normal.
YES
NO
Is the operation normal after replacing normal I/O Board?
OK
CN2 and T1 are abnormal.
NO
Is RESET signal normal? Check 18 pin of IC201. (RESET signal: Refer to waveform (F).)
NO
IC101, IC102 and IC103 are abnormal
YES
Is the oscillating circuit normal? 25 MHz
NO

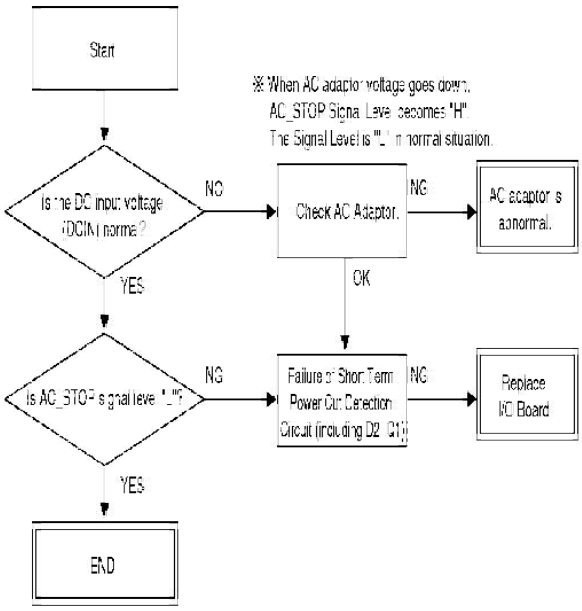
10.4. CAMERA BLOCK CHECK



10.5. POWER SUPPLY BLOCK CHECK

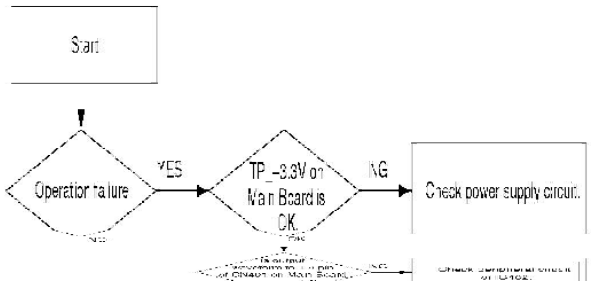


10.5.1. Short Term Power Cut Detection Circuit Check

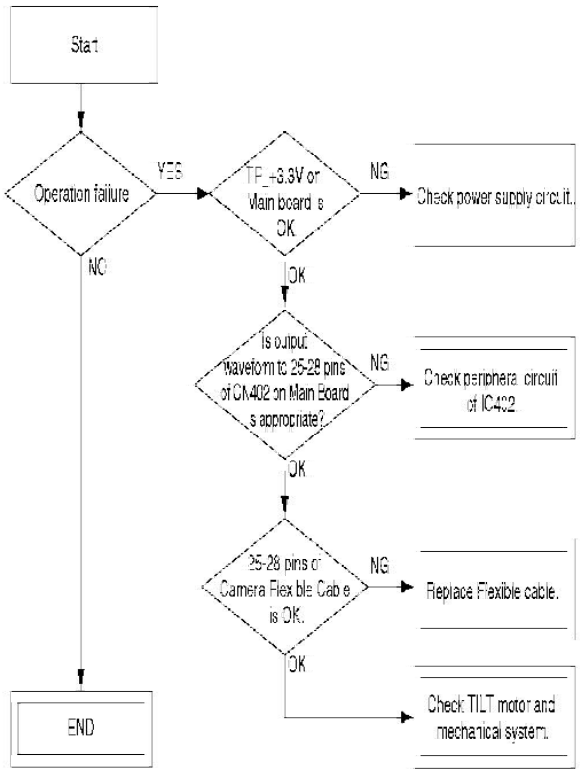


10.6. OTHER OPERATION CHECK

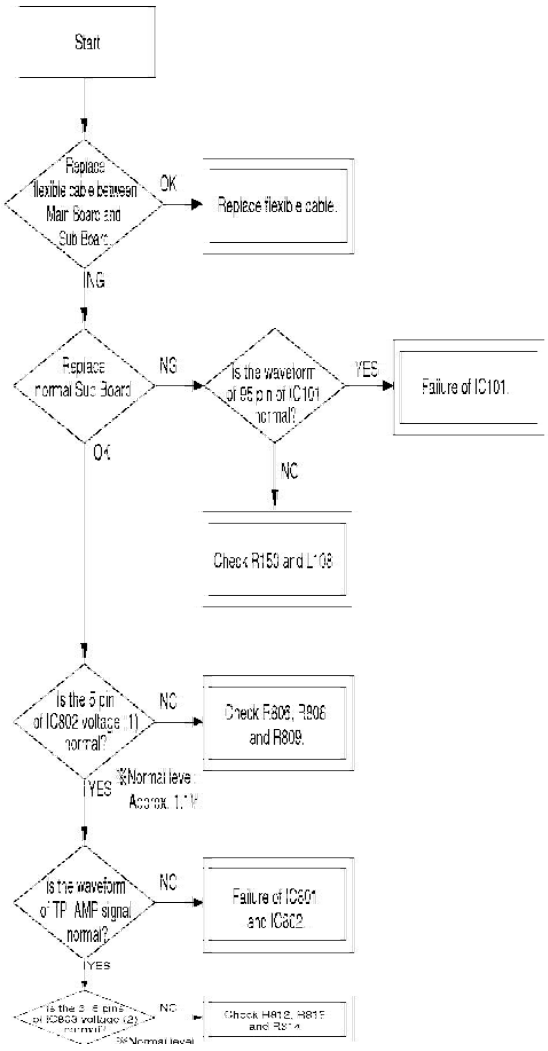
10.6.1. PAN Operation Check



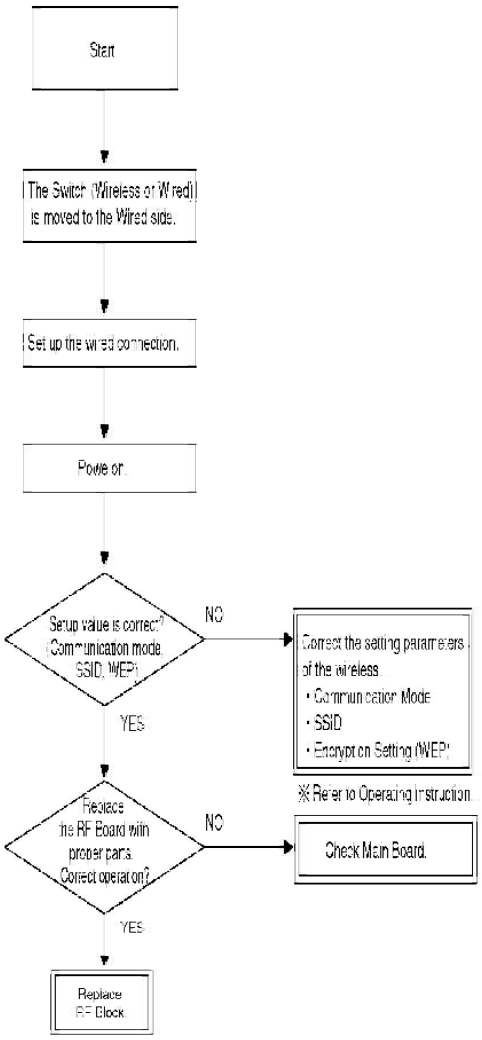
10.6.2. TILT Operation Check



10.7. PYROELECTRIC INFRARED SENSOR CHECK


Start
Replace flexible cable between Main Board and Sub Board.
OK
Replace flexible cable.
NG
Replace normal Sub Board.
NG
Is the waveform of 95 pin of IC101 normal?
YES
Failure of IC101.
OK
NG
Check R159 and L108
Is the 5 pin of IC802 voltage (1) normal?
NG
Check R808, R806 and R809.
YES
%Normal level
Approx. 1.1V
Is the waveform of TP_AMF signal normal?
NG
Failure of IC801 and IC802.
YES
NG
%Normal level

10.8. RF BLOCK



10.9. THE INSPECTION AFTER THE REPAIR

Inspect the following items after the repair.

- Confirm the status (specially MAC Address) refer to CONFIRMING THE STATUS.

- PAN/TILT operation

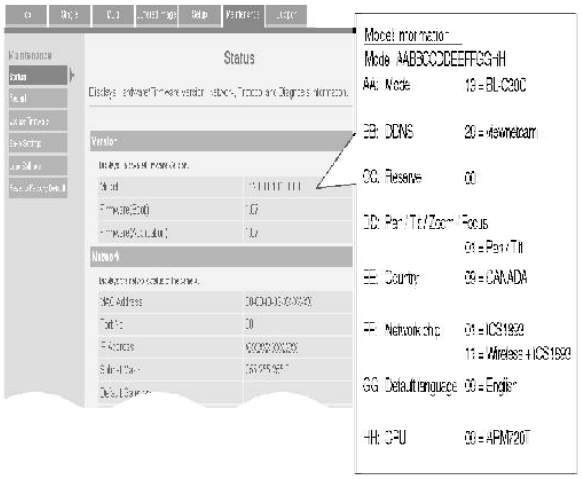
- Pyroelectric Infrared Sensor

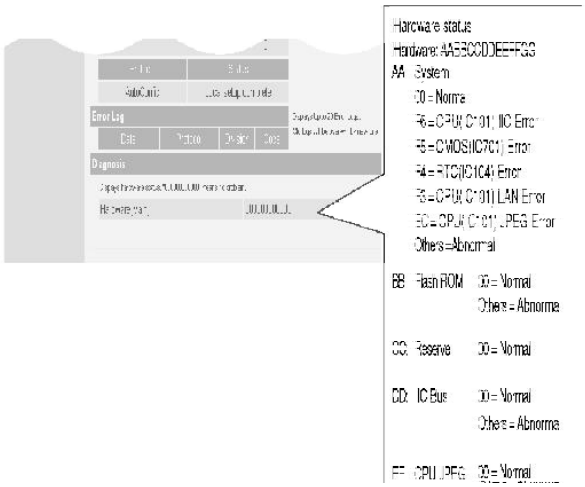
- Video quality

10.10. CONFIRMING THE STATUS

When turning on the power, CPU makes a check using the self-diagnosis function. Check being able to the access to the devicedescribed below.

When the self-diagnosis function of the device described below is NG turning on the power, CPU makes a check using the LEDindicator red-blinks.



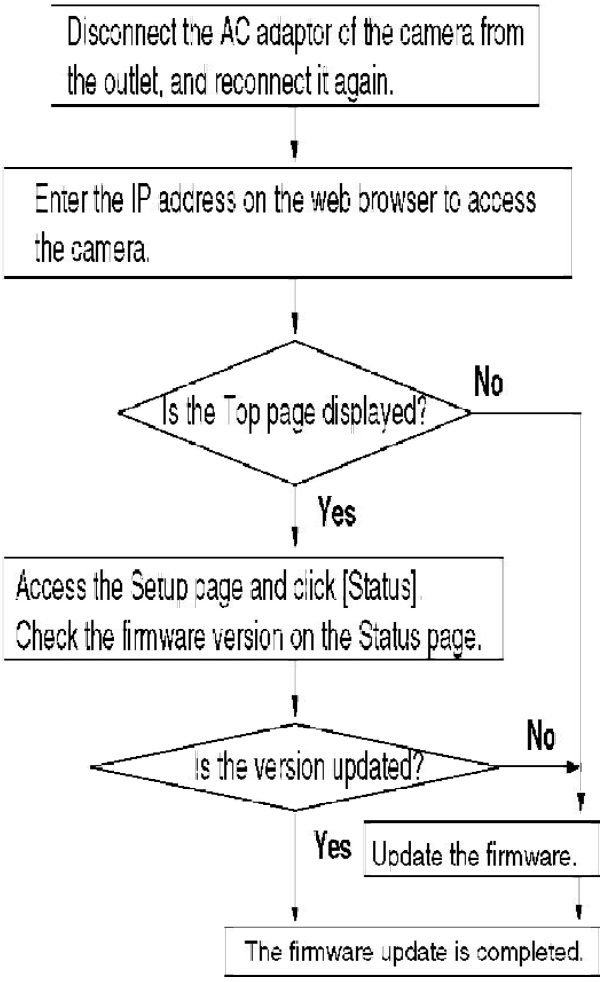


10.11. UPDATE FIRMWARE

10.11.1. Firmware Trouble Shouting

The firmware updating is not completed due to power off, network failure or other causes.

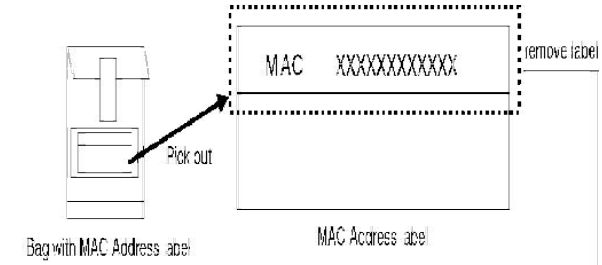
Update the firmware again following the next procedures.


Disconnect the AC adaptor of the camera from the outlet, and reconnect it again.
Enter the IP address on the web browser to access the camera.
Is the Top page displayed?
No
Yes
Access the Setup page and click [Status].
Check the firmware version on the Status page.
Is the version updated?
No
Yes
Update the firmware.
The firmware update is completed.

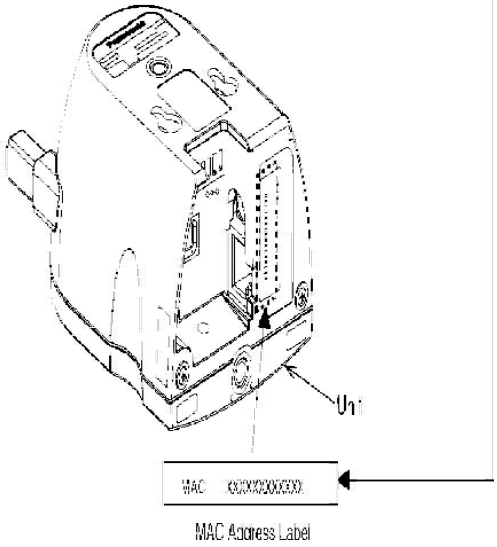
10.12. HOW TO CHANGE MAC ADDRESS LABEL

MAC address label caution
When you replace the main board, you must also attach the new MAC address label(included with the main board). Attach the new MAC address label to the unit by placing over the old MAC address label. Make sure the old address cannot be seen.
Throw away the old main board. It cannot be reused.
(If the MACaddress of the old main board is already registered via DDNS and thenused in a different camera, the camera cannot be used with DDNS service.)

1. Pick out new MAC address label from bag and remove new Mac address label.



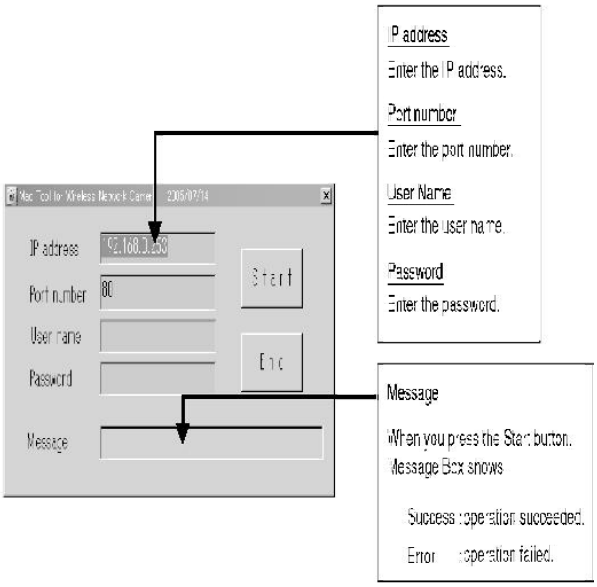
2. Attach the new MAC address label to the unit by placing over the old MAC address label.



How to use the MAC tool

Make sure to employ the following MAC tool for replacing the wireless board or the main board.

How to use the MAC tool



1. Set up wireless communication for the network camera
2. Run the MACtool.exe file.
3. Enter the IP address, the port number, the user name and the password. Press the start button.
4. If the word 'Success' is displayed in the Message Box, the operation has been successful.
5. Exit the MAC tool.

Go back to the check after repair to verify the status again..

*If the wireless board or the main board is replaced, make sure to execute the MACtool.exe file.

11. THE WAY OF THE INITIALIZE

11.1. FACTORY DEFAULT RESET BUTTON

The camera has a FACTORY DEFAULT RESET button on the bottom.

Pressing the FACTORY DEFAULT RESET button resets the camera to factory default.
If you lose your user name and password, use this button to reset the camera.

- Press the FACTORY DEFAULT RESET button for 1 second when the camera is on.
- See Operating Instructions for default settings.
- The indicator blinks orange, and then turns off for 10 seconds.
- Do not turn off the camera until the indicator lights green.

Note:

- The Internal clock will not be reset, but the time format will return to AM/PM mode. Set it again.
- All buffered images are deleted when resetting the camera to factory default.
- The reset operation takes about 1 minute.

11.2. RESETTING THE CAMERA TO FACTORY DEFAULT

All camera settings are reset to factory default directly after the Execute button is clicked.

1. Click [Reset to Factory Default] on the Maintenance page.
2. Click [Execute].

- The indicator blinks orange, and turn off for 10 seconds.

- All camera settings (user name, password, IP address, subnet mask etc.) are reset to factory default.
- If the camera is reset to factory default, the network connection mode changes to [Automatic Setup]. Reconfigure the camera seeing the Getting Started.

Note:

- Internal clock will not be reset, but the time format will return to AM/PM mode. Set it again.
- Please refer to Operating Instructions for default settings.
- Pressing FACTORY DEFAULT RESET button resets the camera to the factory default.
- All buffered images are deleted when resetting the camera to factory default.
- The reset operation takes about 1 minute.
- Do not turn off the camera during the reset operation.

12. NETWORK CAMERA BL-C30C BLOCK DIAGRAM

13. CIRCUIT DESCRIPTION

13.1. MAIN BOARD

13.1.1. CPU Block

CPU (IC101)
Operating Power Supply: 3.3V (for I/O) 1.8V (for Core) 1.8V (for Inside PLL) 2.8V (Camera I/O)
Package: 144 pin QFD
Internal Component: 32bit RISC ARM720T, Hardware JPEG Encoder, Memory Controller, 10/100Base Ethernet MAC, I2C I/F, Serial I/F, SRAM (48KB) and etc are built-in.
Outline of Operation: All system Control and image data from the camera is changed to JPEG data. Then, it is changed to packet and sent out from Ethernet I/F.
32.786 KHz is entered as External Clock and increase at Internal PLL. Then, it operates at 48.955 MHz.
Flash Memory (IC102) and SDRAM (IC103) are accessed by CPU Bus.
CMOS sensor (IC701) and Real Time Clock IC (IC104) on the Camera Block are accessed by I2C I/F.
Ethernet PHY (IC201) is accessed by MII (Media Independent Interface) I/F.

FLASH MEMORY (IC102)
Operating Power Supply: +3.3V
Package: 48 pin Ball CSP
Capacity: 16Mbit
Access Time: 70ns
Outline of Operation: Stores programs for CPU operation, MAC address and customer setup data. Version up is available from Ethernet I/F.

SDRAM (IC103)
Operating Power Supply: +3.3V
Package: 54 pin TSOP
Capacity: 64Mbit
Outline of Operation: Stores the memory for CPU work and temporary saved images.

RESET IC (IC105)
Reset voltage: 2.9V
Package: 4 pin SOP
Outline of Operation: When 3.3V power starts up, it emits about 150ms reset pulse after detecting 2.9V.

Clear Setting Button (SW802)
Outline of Operation: It is possible to bring back the setting value of a Network Camera to a factory-shipments state, when you push.

GPI0

- Motor (PAN/TILT) Operation
- Clear Setting SW
- Privacy Mode SW
- I2C
- LED
- Pyroelectric Infrared Sensor
- Short Term Power Cut Detection

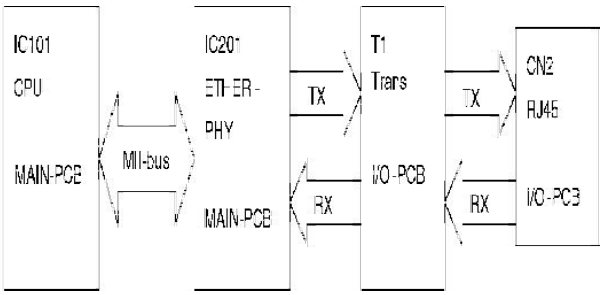
Port No.	IC101 PIN No.	Usage	Description
GPIOA0	79	TXD0	Serial(Not in use.)
GPIOA1	80	RXD0	Serial(Not in use.)
GPIOA2	81	PAN Motor 1	PAN Motor Control
GPIOA3	82	PAN Motor 2	PAN Motor Control
GPIOA4	83	PAN Motor 3	PAN Motor Control
GPIOA5	84	PAN Motor 4	PAN Motor Control
GPIOA6	85	I2C(SCL)	I2C I/F(Clock)
GPIOA7	86	I2C(SDA)	I2C I/F(Data)
GPIOB0	89	RF_P1	For RF Port Input(Application is not decided)
GPIOB1	90	RTS	Serial(Not in use.)
GPIOB2	91	CTS	Serial(Not in use.)
GPIOB3	92	CLEAR SETTING Switch	SW104
GPIOB4	94	Short Term Power Cut Detection	Interruption
GPIOB5	95	Pyroelectric Infrared Sensor	
GPIOB6	96	RF_P3	For RF Port Output(Application is not decided)
GPIOB7	97	RF_P2	For RF Port Output(Application is not decided)
GPIOC0	103	Camera I/F(CMDATA0)	Camera Data Signal
GPIOC1	104	Camera I/F(CMDATA1)	Camera Data Signal
GPIOC2	106	Camera I/F(CMDATA2)	Camera Data Signal
GPIOC3	107	Camera I/F(CMDATA3)	Camera Data Signal
GPIOC4	108	Camera I/F(CMDATA4)	Camera Data Signal
GPIOC5	109	Camera I/F(CMDATA5)	Camera Data Signal
GPIOC6	110	Camera I/F(CMDATA6)	Camera Data Signal
GPIOC7	111	Camera I/F(CMDATA7)	Camera Data Signal
GPIOD0	114	Address A[20]	
GPIOD1	115	MODE	For ICE Mode Recognizing Signal(H: ICE L: Normal)
GPIOD2	116	Power Down	For IC201(PHY), IC701(CMOS Sensor)
GPIOD3	117	nCMOS_RES	For IC701(CMOS Sensor)
GPIOD4	100	Camera I/F(CMVREF)	Camera Vertical Synchronous Signal
GPIOD5	99	Camera I/F(CMHREF)	Camera Horizontal Synchronous Signal
GPIOD6	102	Camera I/F(CMCLKOUT)	For Camera Basic Clock Output Signal
GPIOD7	101	Camera I/F(CMCLKIN)	For Camera Data Input Pixel Clock

GPIOE0	118	LED_R	LED Control(Red)
GPIOE1	119	LED_G	LED Control(Green)
Port No.	IC101 PIN No.	Usage	Description
GPIOE2	124	TILT Motor 1	TILT Motor Control
GPIOE3	121	TILT Motor 2	TILT Motor Control
GPIOE4	120	TILT Motor 3	TILT Motor Control
GPIOE5	125	TILT Motor 3	TILT Motor Control
GPIOE6	126	LENS Button	SW801
GPIOE7	127	Reset	For IC201(PHY)
GPIOF0	45	MII I/F (MII_CRS)	For IC201(PHY) Connection
GPIOF1	46	MII I/F (MII_COL)	For IC201(PHY) Connection
GPIOF2	47	MII I/F (MII_TXD3)	For IC201(PHY) Connection
GPIOF3	48	MII I/F (MII_TXD2)	For IC201(PHY) Connection
GPIOF4	49	MII I/F (MII_TXD1)	For IC201(PHY) Connection
GPIOF5	50	MII I/F (MII_TXD0)	For IC201(PHY) Connection
GPIOF6	52	MII I/F (MII_TXEN)	For IC201(PHY) Connection
GPIOF7	53	MII I/F (MII_TXCLK)	For IC201(PHY) Connection
GPIOG0	54	MII I/F (MII_RXER)	
GPIOG1	57	MII I/F (MII_RXCLK)	For IC201(PHY) Connection
GPIOG2	58	MII I/F (MII_RXDV)	For IC201(PHY) Connection
GPIOG3	59	MII I/F (MII_RXD0)	For IC201(PHY) Connection
GPIOG4	60	MII I/F (MII_RXD1)	For IC201(PHY) Connection
GPIOG5	62	MII I/F (MII_RXD2)	For IC201(PHY) Connection
GPIOG6	63	MII I/F (MII_RXD3)	For IC201(PHY) Connection
GPIOG7	64	MII I/F (MII_MDC)	For IC201(PHY) Connection
GPIOH0	65	MII I/F (MII_MDIO)	For IC201(PHY) Connection

13.1.2. LAN Block

Consists of IC101 (CPU), IC201 (ETHER-PHY), T1 (Trans) and CN2 (RJ45).
T1 (Trans) insulates sets and Ethernet.
IC101 (CPU) and IC201 (ETHER-PHY) are connected by a signal called MIIBus which it makes it possible to transmit/receive Ethernet data.
IC201 has Auto Negotiation Function which changes 100BASE-T or 10BASE-TX automatically.

Transmitting Operation
Electric signal from IC101 is changed to Ethernet data on IC201 and it is sent through T1 from CN2.
Receiving Operation
Ethernet data from CN2 is change to electrical signal on IC201 and it is received by IC101.



13.1.3. Camera Block

<Basic Circuit Operation>

This CMOS image sensor which consolidates sensor section and image process DSP by the 0.35umCMOS process consists of one chip. Each pixel which consists of four transistors has a micro lens for increased sensibility. It changes optical energy to analogue voltage. After that, analogue pixel voltage is converted into digital using the 10 bit AD Converter (ADC). At that time, Correlated Double Sampling (CDS) dramatically decreases Formulaic Pattern Noise (FPN).

Analogue pixel voltage data which is converted to digital is finished using Gammacorrection, Color Correction and Color Space Conversion. Those signals are sent out as digital format 8bit span Y/UV with PCLK, Hsync and Vsync signals as a timing interface. In addition, the Image Processing Function of AE (Auto Iris) and AWB (Auto White Balance) is installed and it is automatically operated following an algorithm in the chip.

Exposure control (Auto Iris) is adjusted by shutter speed.

Setting up of each chip register is set at I2C (IC701:22/23 pin) by CPU (IC101) on Main Board.

CMOS Color Image sensor (IC701)

Operating Power Supply: +2.8V It is supplied by Main Board. (3 Terminal Regulator IC51)

- +2.8VA: Analogue Part Power

- +2.8VD: Digital Part Power

Package: 40pin CLCC

Image Sensor and its Process Circuit are installed.

Total Number of Pixels: 652 x 492 pixels

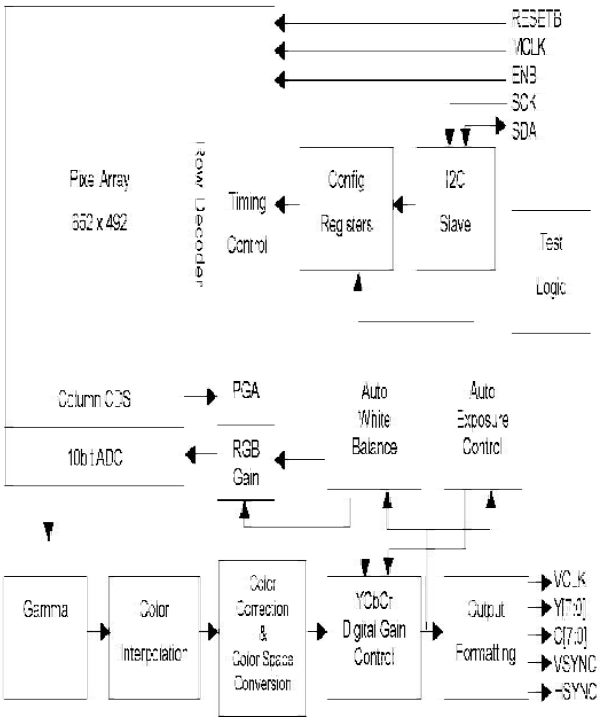
Available Number of Pixels: 652 x 488 pixels

Image Area: 1/4 inch Optical Size

Color Filter: RGB Beyer Alignment

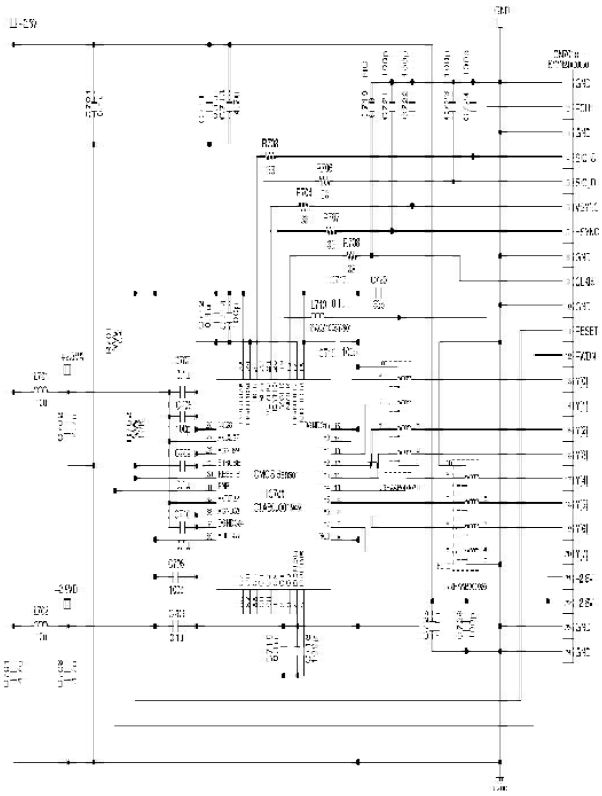
Input Clock: 16.318 MHz (It is supplied by IC101 of Main Board)

CMOS Sensor Block Diagram



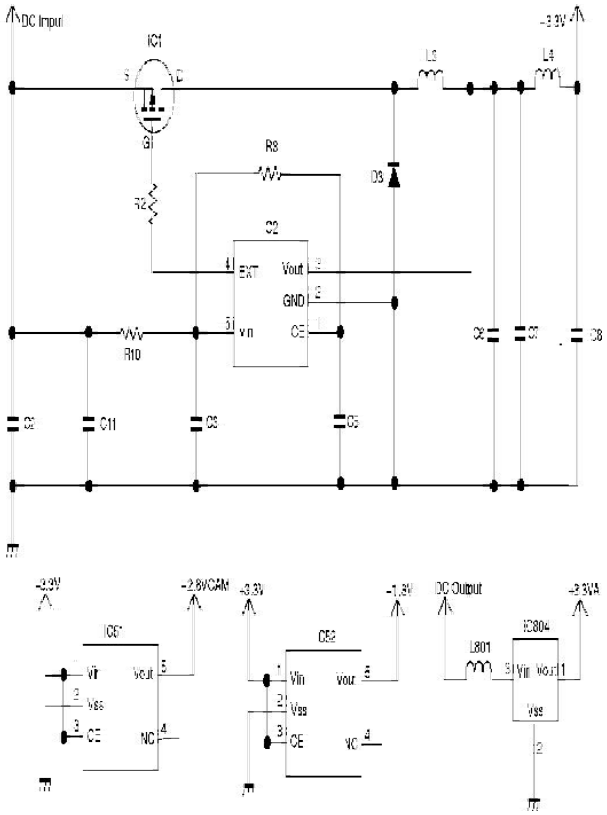
1. **PGA: Programmable Amplifier**
2. **Color Correction and Color Space Conversion are merged into one matrix operation for hardware simplification.**

Detail Circuit Diagram is showed as below.



13.1.4. Power Supply Block

Power Supply Block provides power that each block consumes.
Input is DC 12V/750mA from AC adaptor. The circuit diagram and output voltage are showed as below.



13.1.5. RTC

Real Time Clock (IC104)
Operating Power Supply: 3.3V (3V battery for back up)
Package: 14 pin SOP
Outline of Operation: Stores Clock Data and supplies 32.768 KHz Clock Signal to CPU (IC101).
Backup Battery provides power when power supply is out.

Lithium Battery (BAT1)
Output Voltage: 3V
Capacity: 125mAh
Outline of Operation: A backup power supply for Real Time Clock (IC104).

13.1.6. Pyroelectric Infrared Sensor Block

Pyroelectric Infrared Sensor (IC801)
Operating Power Supply: +3.3V

Package: 3 pin Board Insertion Type
Changes temperature variation into analogue signal which it emits, when a heat source, such as a person, comes into detection area.
The analogue signal is amplified by Operational Amplifier (IC802).

2 Circuits Built-in Operational Amplifier (IC802)
Operating Power Supply: +3.3V
Package: 8 pin SSOP
Amplifies analogue signal from Pyroelectric Infrared Sensor (IC801).
The amplified analogue signal goes into Comparator (IC803).

2 Circuits Built-in Comparator (IC803)
Operating Power Supply: +3.3V
Package: 8 pin SSOP
Composes Window Comparator Circuit. It generates digital signal (H L) to CPU, when the amplified analogue signal from Operation Amplifier is over stipulated voltage. (Standard value is about 0.6~1.6V.)

Operation of Pyroelectric Infrared Sensor

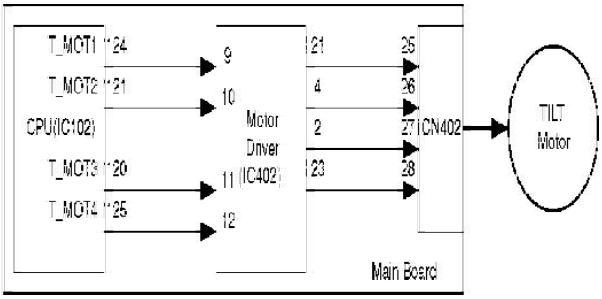
1. **Pyroelectric Infrared Sensor (IC801) emits analogue signal, when a heat source, such as a person, moves into the detection area.**
2. **Above signal is amplified by Operation Amplifier (IC802) which emits analogue signal.**
3. **Above signal is input to Comparator (IC803) and generates digital signal (H ¯ L), when signal amplitude is over standard voltage.**
4. **Above digital signal is input to CPU (IC101).**

13.1.7. PAN Control Block

A pan motor operates, when CPU (IC101) on a Main Board controls the Motor Driver IC (IC402) on the same board.
A Constant Voltage Bipolar Drive System is employed. The Voltage of Motor Power (VM) is 3.3V. ø15 Stepping Motors are employed.

13.1.8. TILT Motor Control Block

A Tilt motor operates, when CPU (IC101) on a main board controls the motor driver IC (IC402) on the same board.
A Constant Voltage Bipolar Drive System is employed. The Voltage of Motor Power (VM) is 3.3V. ø15 Stepping Motors are employed.



13.1.9. LED Control Block

LED is controlled by CPU which is mounted on Main Board. Control data is input into LED Control Circuit which is mounted on Sub Board. (Three color LED is employed.)

LED_R	LED_G	Color of LED
L	L	OFF
L	H	Green
H	L	Red
H	H	Orange

13.2. RF BLOCK

- Antenna

- Receiver

The receiving signal from the antenna is input to the RFIC (IC502) after being passed through the Antenna Switch (IC506) and amplified at LNA (Low Noise Amp). The RFIC (IC502) incorporates the LNA (Low Noise Amp), the Mixer for Frequency Converter and the Synthesizer generating the Receiving Local Signal. At the RFIC (IC502), the input signal is separated into the baseband signals of the In-Phase(RxI) and Quadrature (RxQ) to output.

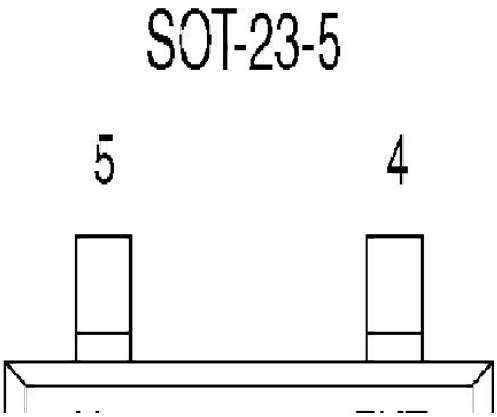
The baseband signal is input to the CPU&MAC/BBIC(IC601) and, after A/D conversion, the data are regenerated.

- Transmitter

The Data Frame (Data Packet) generated at the built-in MAC Part by the CPU&MAC/BBIC (IC601) is converted to the In-Phase (TxI) and the Quadrature (TxQ) and input to the RFIC (IC502).
At the RFIC (IC502), it is converted to the RF Signal of the transmitting frequency band.
After processing including impedance conversion, level adjustment and control of the unnecessary frequency component, it is sent from the antenna through the Antenna Switch (IC506).
The RF Signal from the Power Amp (IC505) is fed back to the RFIC (IC502) after level detection. The gain is adjusted in the RFIC (IC502) for a constant transmitter output level.

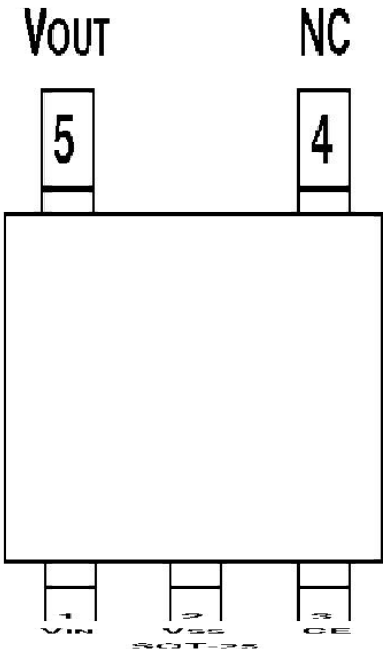
14. IC DATA

14.1. IC2



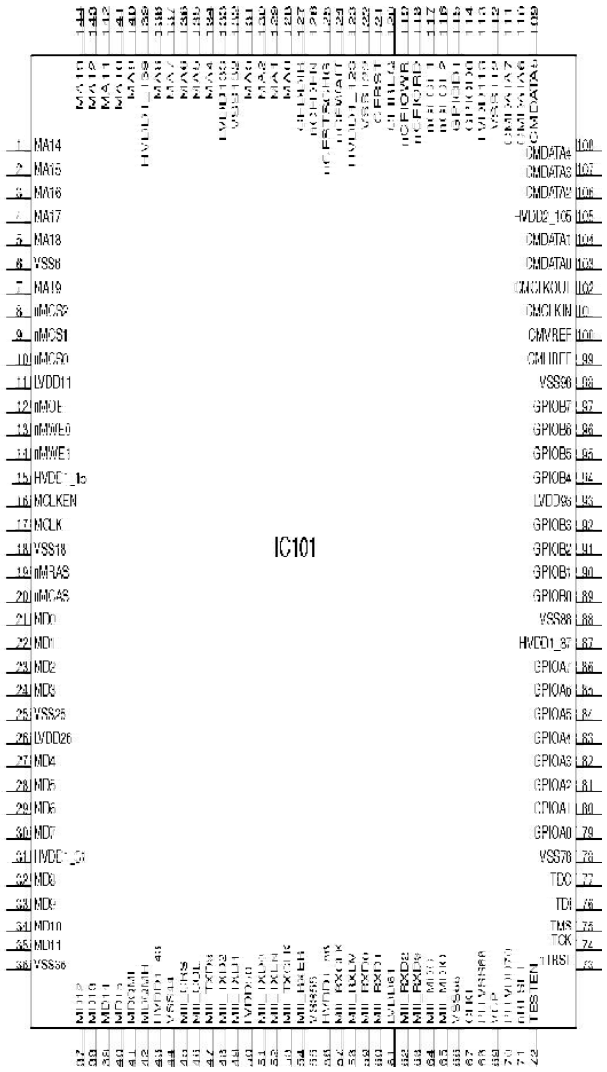
Pin No.	Pin Name	Description
1	CE	Chip enable terminal ("H" ACTIVE)
2	GND	GND terminal
3	VOUT (FFB)	Output voltage monitoring terminal
4	EXT	External Tr drive terminal (CMOS output)
6	VIN	Power input terminal

14.2. IC51, 52



Pin No.	Pin Name	Description
1	VIN	Power input terminal
2	VSS	Ground terminal
3	CE	ON/OFF control terminal
4	NC	No connection
5	VOUT	Output terminal

14.3. IC101


IC101

Pin No.	Pin Name	Type	Pin No.	Pin Name	Type
1	MA14	O	46	MII_COL	I/O
2	MA15	O	47	MII_TXD3	I/O
3	MA16	O	48	MII_TXD2	I/O
4	MA17	O	49	MII_TXD1	I/O
5	MA18	O	50	LVDD	P
6	VSS	P	51	MII_TXD0	I/O
7	MA19	O	52	MII_TXEN	I/O
8	MCS2#	O	53	MII_TXCLK	I/O
9	MCS1#	O	54	MII_RXER	I/O
10	MCS0#	O	55	VSS	P
11	LVDD	P	56	HVDD1	P
12	MOE#	O	57	MII_RXCLK	I/O
13	MWE0#	O	58	MII_RXDV	I/O
14	MWE1#	O	59	MII_RXD0	I/O
15	HVDD1	P	60	MII_RXD1	I/O
16	MCLKEN	O	61	LVDD	P
17	MCLK	O	62	MII_RXD2	I/O
18	VSS	P	63	MII_RXD3	I/O
19	MRAS#	O	64	MII_MDC	I/O
20	MCAS#	O	65	MII_MDIO	I/O
21	MD0	I/O	66	VSS	P
22	MD1	I/O	67	CLKI	I
23	MD2	I/O	68	PLLVSS	P
24	MD3	I/O	69	VCP	O
25	VSS	P	70	PLLVDD	P
26	LVDD	P	71	RESET#	I
27	MD4	I/O	72	TESTEN	I
28	MD5	I/O	73	TRST#	I
29	MD6	I/O	74	TCK	I
30	MD7	I/O	75	TMS	I
31	HVDD1	P	76	TDI	I
32	MD8	I/O	77	TDO	O
33	MD9	I/O	78	VSS	P
34	MD10	I/O	79	GPIOA0	I/O
35	MD11	I/O	80	GPIOA1	I/O
36	VSS	P	81	GPIOA2	I/O
37	MD12	I/O	82	GPIOA3	I/O
38	MD13	I/O	83	GPIOA4	I/O
39	MD14	I/O	84	GPIOA5	I/O
40	MD15	I/O	85	GPIOA6	I/O
41	MDQML	O	86	GPIOA7	I/O
42	MDQMH	O	87	HVDD1	P
43	HVDD1	P	88	VSS	P
44	VSS	P	89	GPIOB0	I/O
45	MII_CRS	I/O	90	GPIOB1	I/O

45	**MII_CRS**	**I/O**	**90**	**GPIOB1**	**I/O**

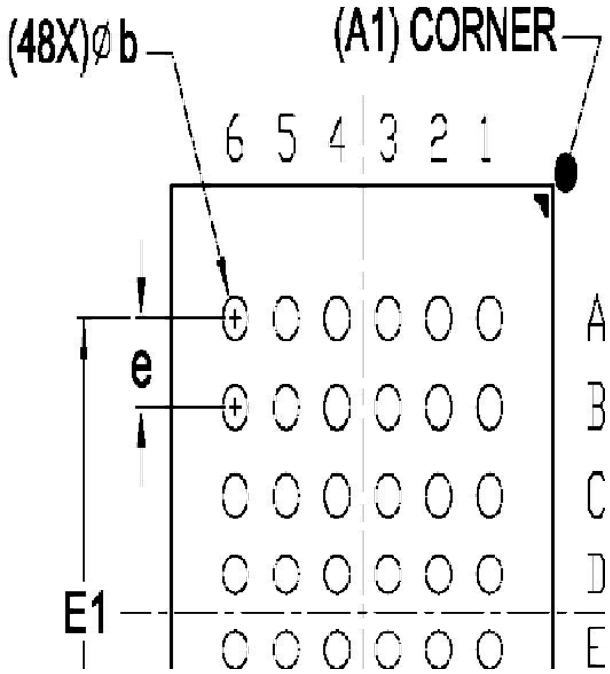
Pin No.	Pin Name	Type
91	GPIOB2	I/O
92	GPIOB3	I/O
93	LVDD	P
94	GPIOB4	I/O
95	GPIOB5	I/O
96	GPIOB6	I/O
97	GPIOB7	I/O
98	VSS	P
99	CMHREF	I/O
100	CMVREF	I/O
101	CMCLKIN	I/O
102	CMCLKOUT	I/O
103	CMDATA0	I/O
104	CMDATA1	I/O
105	HVDD2	P
106	CMDATA2	I/O
107	CMDATA3	I/O
108	CMDATA4	I/O
109	CMDATA5	I/O
110	CMDATA6	I/O
111	CMDATA7	I/O
112	VSS	P
113	LVDD	P
114	GPIOD0	I/O
115	GPIOD1	I/O
116	CFCE2#	I/O
117	CFCE1#	I/O
118	CFIORD#	I/O
119	CFIOWR#	I/O
120	CFIREQ	I/O
121	CFRST	I/O
122	VSS	P
123	HVDD1	P
124	CFWAIT#	I/O
125	CFSTSCHG#	I/O
126	CFDEN#	I/O
127	CFDDIR	I/O
128	MA0	O
129	MA1	O
130	MA2	O
131	MA3	O
132	VSS	P
133	LVDD	P
134	MA4	O
135	MA5	O

Pin No.	Pin Name	Type
136	MA6	O
137	MA7	O
138	MA8	O
139	HVDD1	P
140	MA9	O
141	MA10	O
142	MA11	O
143	MA12	O
144	MA13	O

Note:
The terminal name marked with a "#" has an active low signal.

14.4. IC102

BOTTOM VIEW

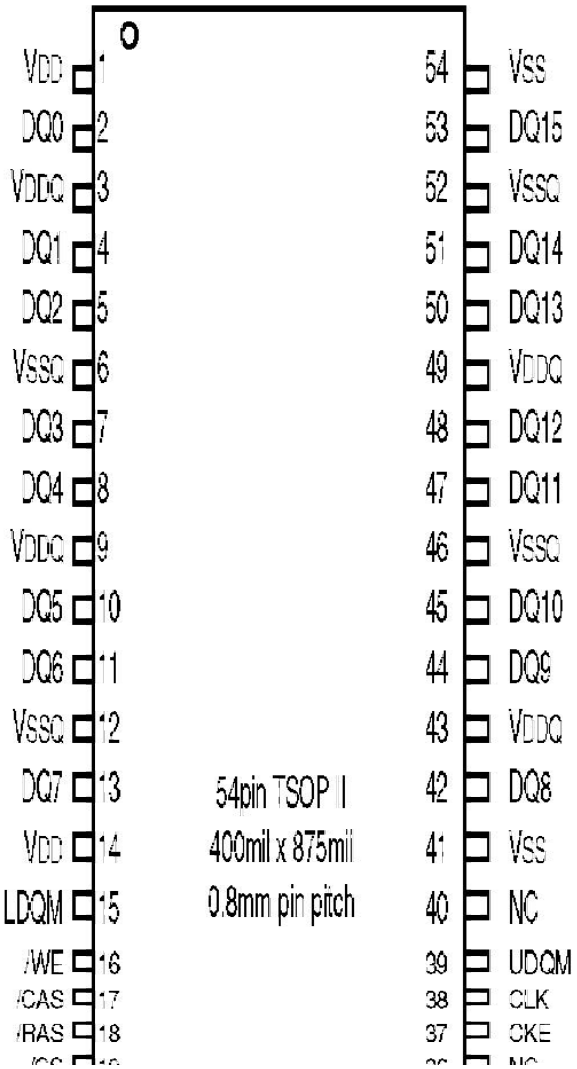


48-Ball CSP (Ball Pitch=0.8mm) Top View, Balls Facing Down (8 x 13mm for MX29LV160T/B; 6 x 8mm for MX29LV160AT/AB)

	A	B	C	D	E	F	G	H
6	A13	A12	A14	A15	A16	$\overline{BYTE}$	Q15/A-1	GND
5	A9	A8	A10	A11	Q7	Q14	Q13	Q6
4	$\overline{WE}$	$\overline{RESET}$	NC	A19	Q5	Q12	VCC	Q4
3	RY/$\overline{BY}$	NC	A18	NC	Q2	Q10	Q11	Q3
2	A7	A17	A6	A5	Q0	Q8	Q9	Q1
1	A3	A4	A2	A1	A0	$\overline{CE}$	$\overline{OE}$	GND

SYMBOL	PIN NAME
A0~A19	Address Input
Q0~Q14	Data Input/Output
Q15/A-1	Q15(Word mode)/LSB addr(Byte mode)
$\overline{CE}$	Chip Enable Input
$\overline{WE}$	Write Enable Input
$\overline{BYTE}$	Word/Byte Selection input
$\overline{RESET}$	Hardware Reset Pin/Sector Protect Unlock
$\overline{OE}$	Output Enable Input
RY/$\overline{BY}$	Ready/Busy Output

14.5. IC103

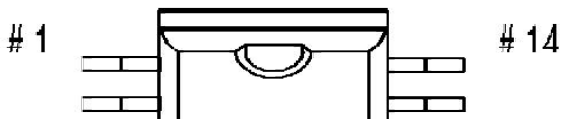

VDD 1
DQ0 2
VDDQ 3
DQ1 4
DQ2 5
VSSQ 6
DQ3 7
DQ4 8
VDDQ 9
DQ5 10
DQ6 11
VSSQ 12
DQ7 13
VDD 14
LDQM 15
/WE 16
/CAS 17
/RAS 18
54 VSS
53 DQ15
52 VSSQ
51 DQ14
50 DQ13
49 VDDQ
48 DQ12
47 DQ11
46 VSSQ
45 DQ10
44 DQ9
43 VDDQ
42 DQ8
41 VSS
40 NC
39 UDQM
38 CLK
37 CKE
54pin TSOP I
400mil x 875mil
0.8mm pin pitch

PIN	PIN NAME	DESCRIPTION
CLK	Clock	The system clock input. All other inputs are registered to the SDRAM on the rising edge of CLK
CKE	Clock Enable	Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh
$\overline{CS}$	Chip Select	Enables or disables all inputs except CLK, CKE and DQM
BA0 BA1	Bank Address	Selects bank to be activated during $\overline{RAS}$ activity Selects bank to be read/written during $\overline{CAS}$ activity
A0 ~ A11	Address	Row Address : RA0 ~ RA11, Column Address : CA0 ~ CA7 Auto-precharge flag : A10
$\overline{RAS}$, $\overline{CAS}$, $\overline{WE}$	Row Address Strobe, Column Address Strobe, Write Enable	$\overline{RAS}$, $\overline{CAS}$ and $\overline{WE}$ define the operation Refer function truth table for details
LDQM, UDQM	Data Input/Output Mask	Controls output buffers in read mode and masks Input data in write mode
DQ0 ~ DQ15	Data Input/Output	Multiplexed data input / output pin
VDD/VSS	Power Supply/Ground	Power supply for internal circuits and input buffers
VDDQ/VSSQ	Data Output Power/Ground	Power supply for output buffers
NC	No Connection	No connection

14.6. IC104

RX - 8581 SA

SOP - 14 pin

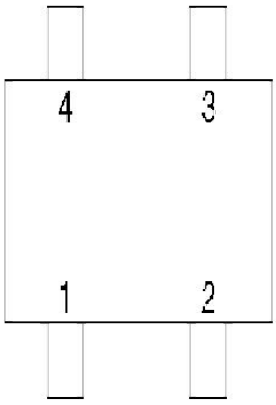


Pin No.	Pin Name	I/O	Description
2	SCL	I	Inputs I2C-BUS communications serial clock.
3	SDA	I/O	Inputs/Outputs address, data, and acknowledges bit is in synchronization with I2C-BUS communications serial clock. This terminal is an open drain on output. Connect the proper pull-up resistor depending on the signal line capacity.
14	FOUT	O	This is a C-MOS output terminal with the output controlled by FOE. In case of FOE = "H", FOUT outputs at 32.768kHz. When no output , FOUT is at the "L" level.
10	FOE	I	This is an input terminal that controls the FOUT output state. When this terminal is at the "H" level, FOUT becomes the output state. And when this terminal is at the "L" level, FOUT stops.
7	/INT	O	Outputs an interrupt signal such as the Alarm, Timer, and Time Update. This terminal is an open drain terminal.
11	VDD	-	Connects to +(positive) power supply.
11	(VDD)	-	Same potential as VDD, but do NOT connect externally. Note: RX-8581SA (SOP-14pin) does not have this terminal.
5	GND	-	Connects to ground.
4, 6, 8, 9, 12, 13	N.C.	-	Not connected to the internal IC. OPEN, or connect to GND or VDD. Note: Make sure that the 14pin~|22pin in RX-8581NB (SON-22pin) ,which are the N.C. terminals, are mutually connected by an inner cone.

Note:

Be sure to connect a bypass capacitor of more than 0.1 F to the nearest terminal between VDD and GND.

14.7. IC105

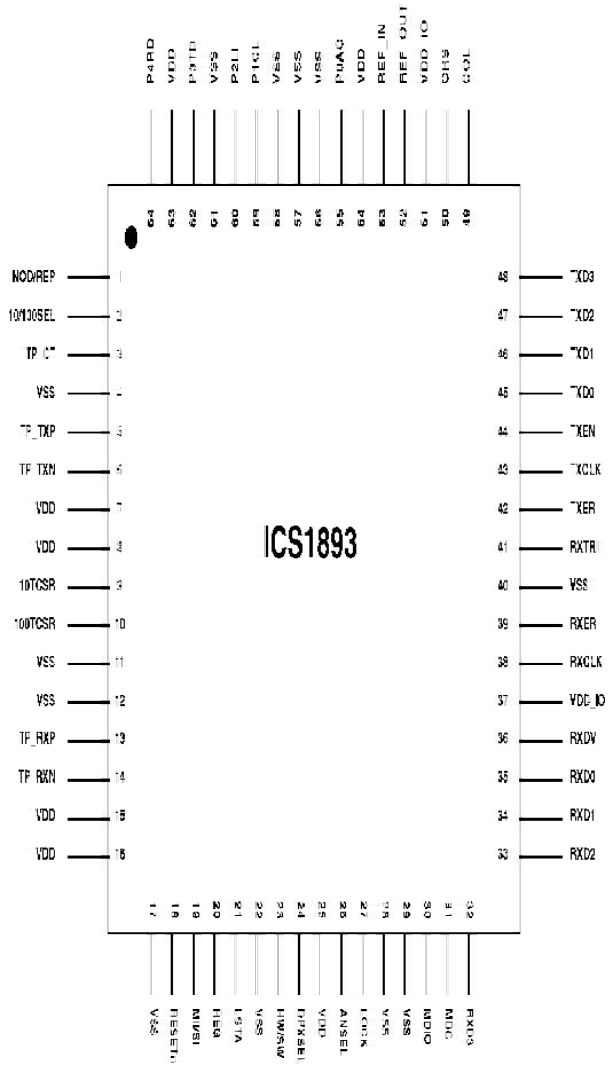


1	GND
2	V_{DD}
3	Cd
4	OUT

SC-82AB
(TOP VIEW)

1	**GND**
2	**VDD**
3	**Cd**
4	**OUT**

14.8. IC201

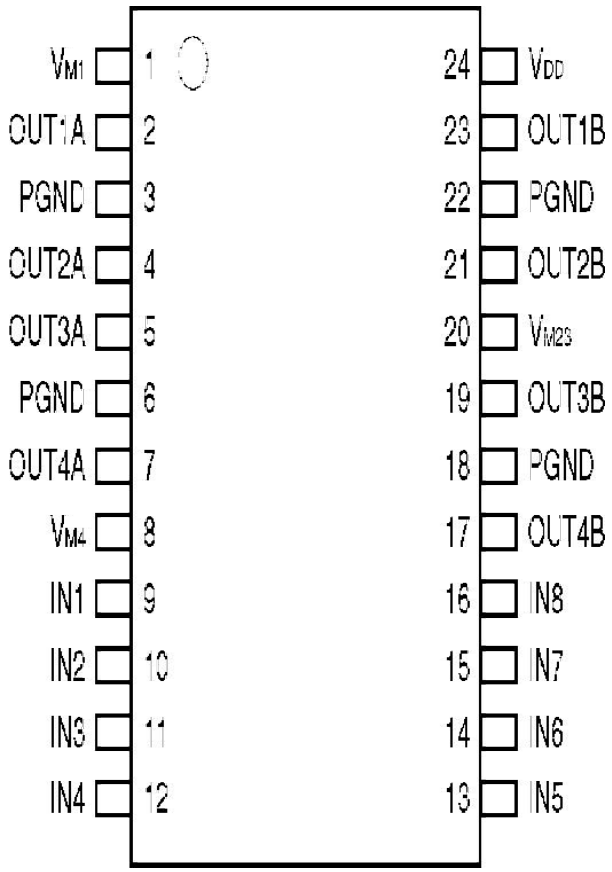

ICS1893
NOD/REP
10/100SEL
TP_TXP
TP_TXN
VDD
VDD
100TCSR
100TCSR
VSS
VSS
TP_RXP
TP_RXN
VDD
VDD
TXD3
TXD2
TXD1
TXD0
TXEN
TXCLK
TXER
RXTRI
VSS
RXER
RXCLK
VDD_IO
RXDV
RXD0
RXD1
RXD2

Pin No.	Pin Name	I/O	Description
14	TP_RXN	I	Twisted-Pair Receive (Data) Negative.
13	TP_RXP	I	Twisted-Pair Receive (Data) Positive.
6	TP_TXN	O	Twisted-Pair Transmit (Data) Negative.
5	TP_TXP	O	Twisted-Pair Transmit (Data) Positive.
55	P0AC	I/O	PHY (Address Bit) 0 / Activity LED.
59	P1CL	I/O	PHY (Address Bit) 1 / Collision LED.
60	P2LI	I/O	PHY (Address Bit) 2 / Link Integrity LED.
62	P3TD	I/O	PHY (Address Bit) 3 / Transmit Data LED.
64	P4RD	I/O	PHY (Address Bit) 4 / Receive Data LED.
2	10/100SEL	I/O	10Base-T / 100Base-TX Select.
9	10TCSR	I	10M Transmit Current Set Resistor.
10	100TCSR	I	100M Transmit Current Set Resistor.
26	ANSEL	I	Auto-Negotiation Select.
24	DPXSEL	I//O	Half-Duplex / Full-Duplex Select.
23	HW/SW	I	Hardware/Software (Select).
27	LOCK	O	(Stream Cipher) Lock (Acquired).
21	LSTA	O	Link Status.
19	MII/SI	I	Media Independent Interface / Stream Interface (Select).
1	NOD/REP	I	Node/Repeater (Select).
53	REF_IN	I	(Frequency) Reference Input.
52	REF_OUT	I	(Frequency) Reference Output.
18	RESETn	I	(System) Reset (Active Low).
49	COL	O	Collision (Detect).
50	CRS	O	Carrier Sense.
31	MDC	I	Management Data Clock.
30	MDIO	I/O	Management Data Input/Output.
38	RXCLK	O	Receive Clock.
35 34 33 32	RXD0 RXD1 RXD2 RXD3	I	Receive Data 0-3.
36	RXDV	O	Receive Data Valid.
39	RXER	O	Receive Error.
41	RXTRI	I	Receive (Interface), Tri-State.
43	TXCLK	O	Transmit Clock.
45 46 47 48	TXD0 TXD1 TXD2 TXD3	I	Transmit Data 0-3.
44	TXEN	I	Transmit Enable.
42	TXER	I	Transmit Error.

Pin No.	MII Pin Name	100M Symbol Pin Name	I/O	Description
49	COL	-	NC	Collision (Detect).
50	CRS	SCRS	O	Symbol Carrier Sense.
31	MDC	MDC	I	Management Data Clock.
30	MDIO	MDIO	I/O	Management Data Input/Output.
38	RXCLK	SRCLK	O	(Symbol) Receive Clock.
35 34 33 32	RXD0 RXD1 RXD2 RXD3	SRD0 SRD1 SRD2 SRD3	O	Symbol Receive Data 0-3.
36	RXDV	-	NC	Receive Data Valid.
39	RXER	SRD4	O	Symbol Receive Data 4.
41	RXTRI		I	Receive (Interface), Tri-State.
43	TXCLK	STCLK	O	Symbol Transmit Clock.
45 46 47 48	TXD0-3	STD0 STD1 STD2 STD3	I	Symbol Transmit Data 0-3.
44	TXEN	-	NC	Transmit Enable.
42	TXER	STD4	I	Symbol Transmit Data 4.
49	COL	10COL	O	10M (Serial Interface) Collision (Detect).
50	CRS	10CRS	O	10M (Serial Interface) Carrier Sense.
31	MDC	MDC	I	Management Data Clock.
30	MDIO	MDIO	I/O	Management Data Input/Output.
38	RXCLK	10RCLK	O	10M Receive Clock.
35	RXD0	10RD	-	10M (Serial Interface) Receive Data 0.
34 33 32	RXD1 RXD2 RXD3	-	NC	Receive Data 1-3.
36	RXDV	10RXDV	O	10M (Serial Interface) Receive Data Valid.
39	RXER	-	NC	Receive Error.
41	RXTRI		I	Receive (Interface), Tri-State.
43	TXCLK	10TCLK	O	10M (Serial Interface) Transmit Clock.
45	TXD0	10TD	I	10M (Serial Interface) Transmit Data.
46 47 48	TXD1 TXD2 TXD3	-	NC	Transmit Data 1-3.
44	TXEN	10TXEN	I	10M (Serial Interface) Transmit Enable.
42	TXER	-	NC	Transmit Error.

Pin No.	Pin Name	I/O	Description
20	REG	I	

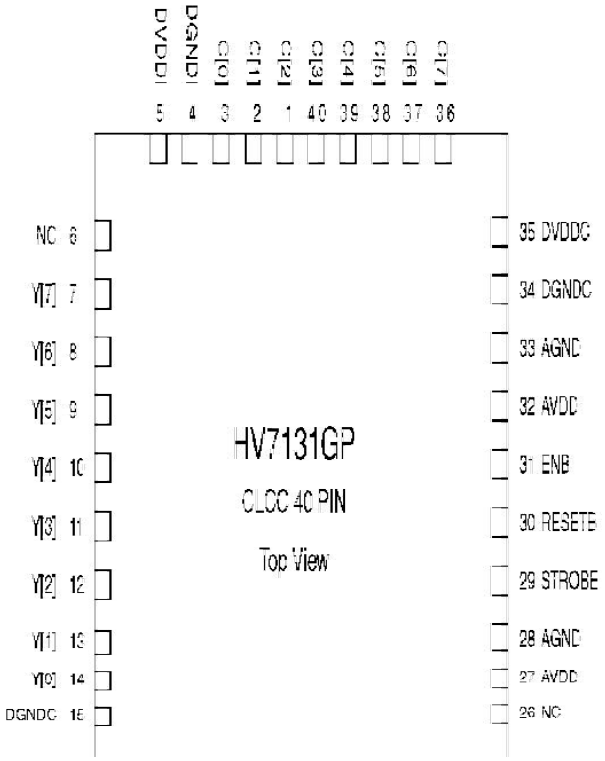
14.9. IC402



Pin No.	Pin Name	Description
1	VM1	1ch motor power supply voltage input terminal
2	OUT1A	H-bridge output terminal (1A)
3	PGND	GND terminal
4	OUT2A	H-bridge output terminal (2A)
5	OUT3A	H-bridge output terminal (2A)
6	PGND	GND terminal
7	OUT4A	H-bridge output terminal (4A)
8	VM4	4ch motor power supply voltage input terminal
9	IN1	Control input terminal (H-bridge1)
10	IN2	Control input terminal (H-bridge1)
11	IN3	Control input terminal (H-bridge2)
12	IN4	Control input terminal (H-bridge2)
13	IN5	Control input terminal (H-bridge3)
14	IN6	Control input terminal (H-bridge3)
15	IN7	Control input terminal (H-bridge4)
16	IN8	Control input terminal (H-bridge4)
17	OUT4B	H-bridge output terminal (4B)
18	PGND	GND terminal
19	OUT3B	H-bridge output terminal (3B)
20	VM23	2, 3ch motor power supply voltage input terminal

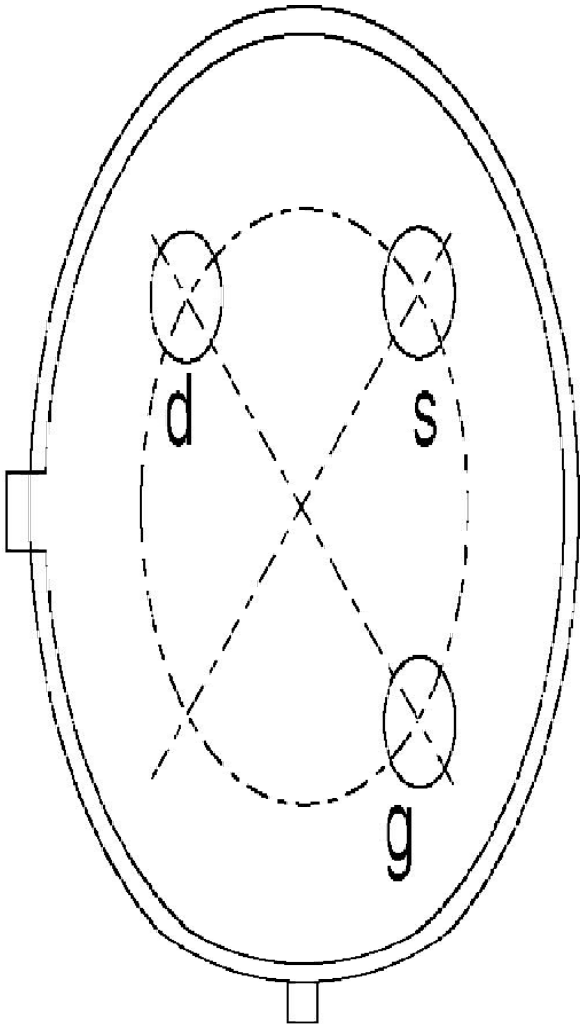
Pin No.	Pin Name	Description
21	OUT2B	H-bridge output terminal (2B)
22	PGND	GND terminal
23	OUT1B	H-bridge output terminal (1B)
24	VDD	Controller power supply voltage input terminal

14.10. IC701



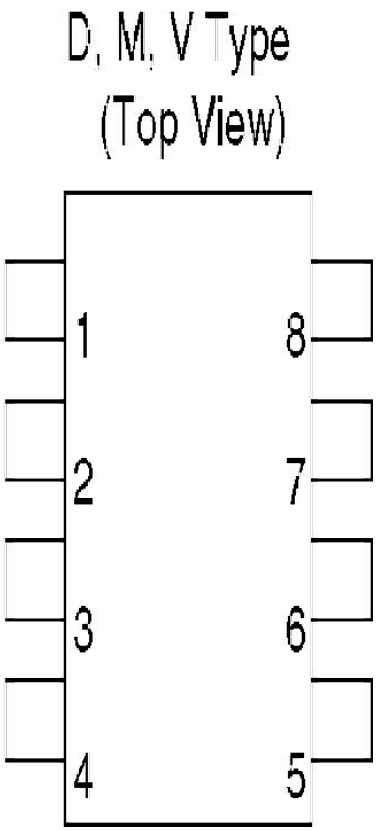
Pin No.	Type	Symbol	Description
1-3	B	C[2:0]	Video Chrominance Data[2:0]
4	G	DGNDI	Digital Ground for I/O Buffer
5	P	DVDDI	Digital Power for I/O Buffer
6	N	NC	No Connection
7-14	O	Y[7:0]	Video Luminance Data[7:0]
15	G	DGNDC	Ground for Internal Digital Block
16	P	DVDDC	Power for Internal Digital Block
17	G	DGNDI	Digital Ground for I/O Buffer
18	I	MCLK	Master Input Clock
19	O	VCLK	Video Output Clock
20	O	HSYNC	Video Horizontal Line Synchronization signal. Image data is valid, when HSYNC is high.
21	O	VSYNC	Video Frame Synchronization signal. VSYNC is active at start of image data frame.
22	B	SDA	I2C Standard data I/O port
23	I	SCK	I2C Clock Input
24	G	DGNDI	Digital Ground for I/O Buffer
25	P	DVDDI	Digital Power for I/O Buffer
26	N	NC	No Connection
27	P	AVDD	Power for Analog Block
28	G	AGND	Ground for Analog Block
29	O	STROBE	Strobe Signal Output
30	I	RESETB	Sensor Reset, Low Active
31	I	ENB	Sensor sleep mode is controlled externally by this pin when sleep mode register bit SCTRB[4] is low. ENB low : sleep mode, ENB high : normal mode
32	P	AVDD	Power for Analog Block
33	G	AGND	Ground for Analog Block
34	G	DGNDC	Ground for Internal Digital Block
35	P	DVDDC	Power for Internal Digital Block
36-40	B	C[7:3]	Video Chrominance Data[7:3]

14.11. IC801



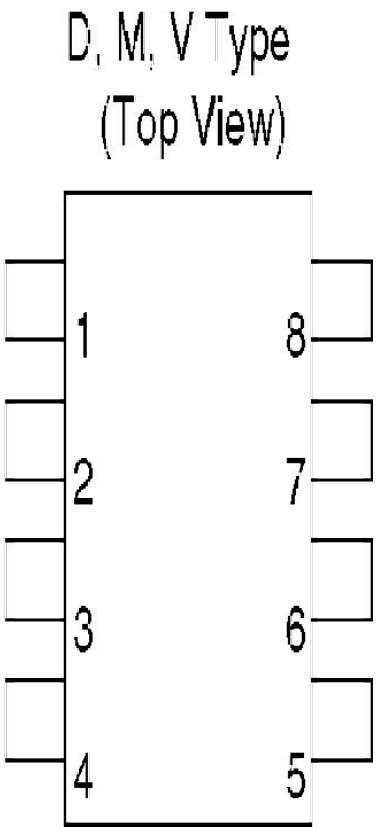
Pin	Description
d (Drain)	Power, Drain tarminal
s (Source)	Source output terminal
g (Ground)	Ground terminal

14.12. IC802



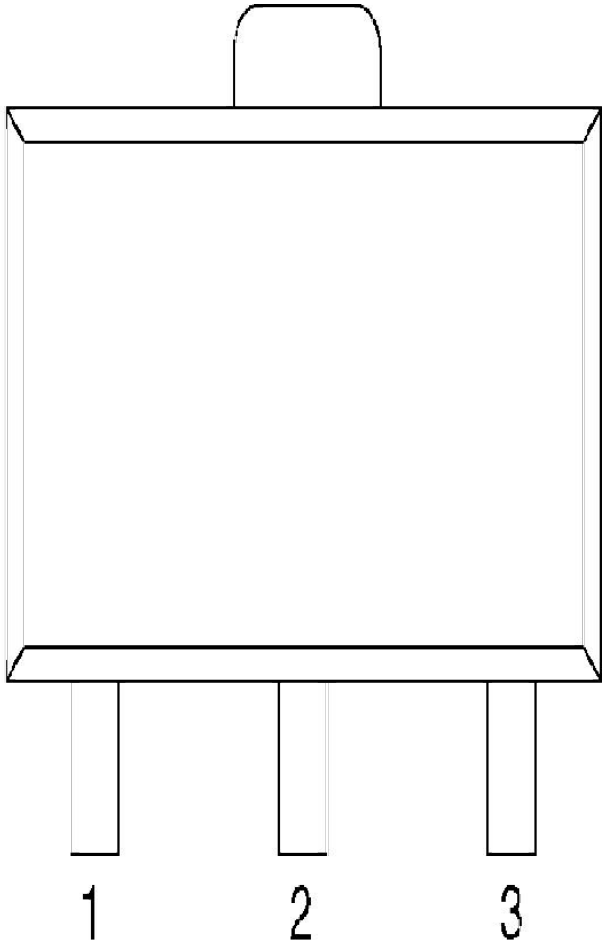
Pin No.	Pin Name	Description
1	A	OUTPUT
2	A	-INPUT
3	A	+INPUT
4	GND	
5	B	+INPUT
6	B	-INPUT
7	B	OUTPUT
8	V+	

14.13. IC803



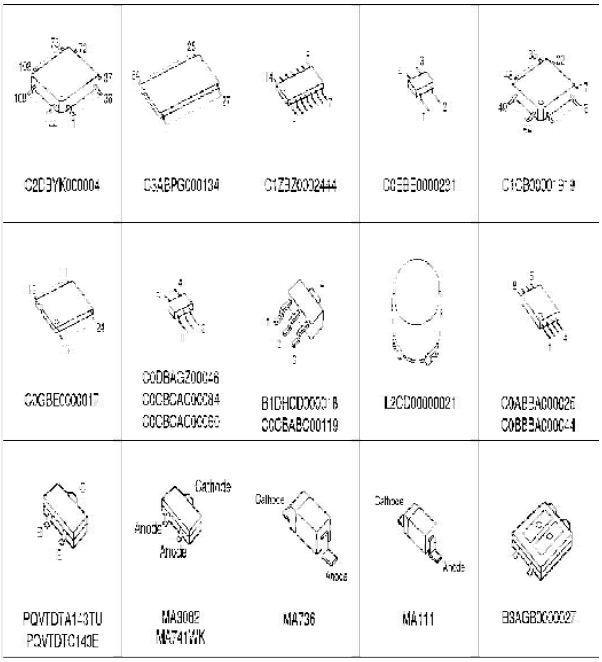
Pin No.	Pin Name	Description
1	A	OUTPUT
2	A	-INPUT
3	A	+INPUT
4	GND	
5	B	+INPUT
6	B	-INPUT
7	B	OUTPUT
8	V+	

14.14. IC804



Pin No.	Pin Name	Function
1	VOUT	Regulated voltage Output
2	VSS	Ground
3	VIN	Supply Voltage Input

15. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES



16. HOW TO REPLACE A FLAT PACKAGE IC

16.1. PREPARATION

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of 700°F ± 20°F (370°C ± 10°C)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

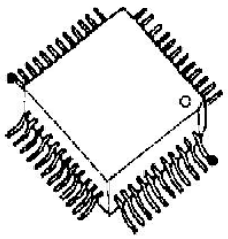
Recommended Flux: Specific Gravity 0.82.

Type RMA (lower residue, non-cleaning type)

Note: See ABOUT LEAD FREE SOLDER (PbF: Pb free) ().

16.2. PROCEDURE

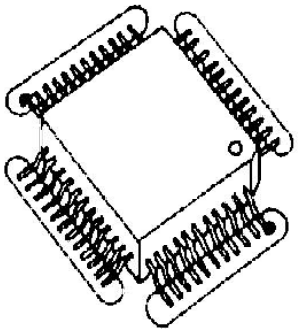
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



Temporary soldering point.

Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.



Flux

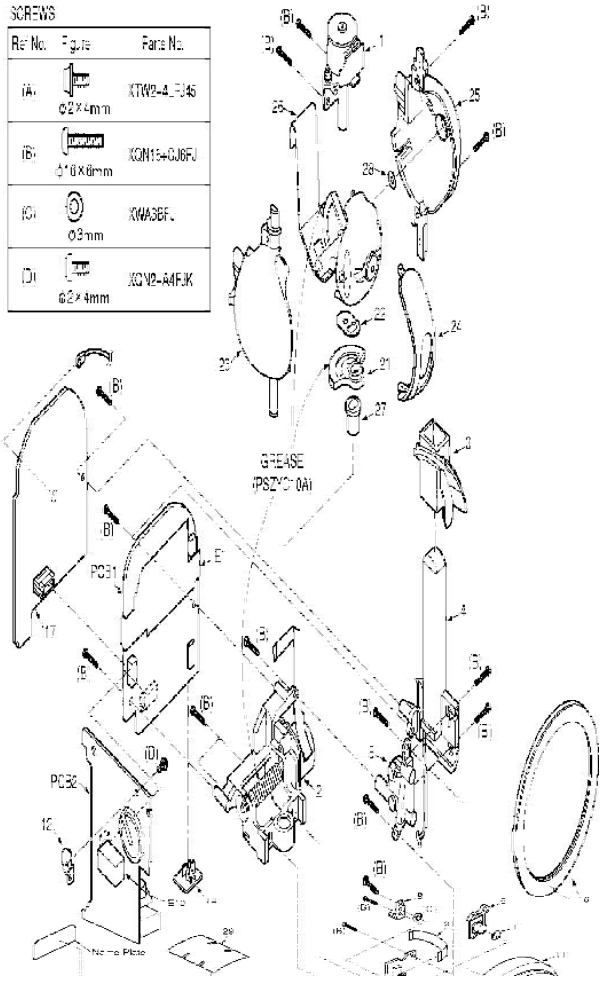
3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.

16.3. REMOVING SOLDER FROM BETWEEN PINS

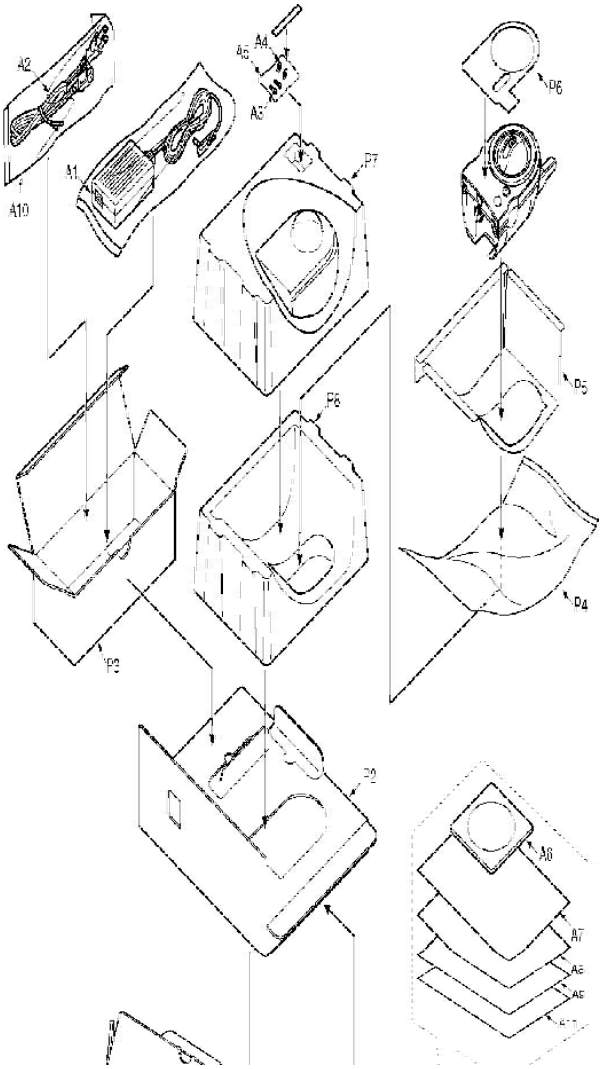
1. Add a small amount of solder to the bridged pins.

2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.

17. CABINET AND ELECTRICAL PARTS LOCATION



18. ACCESSORIES AND PACKING MATERIALS



19. REPLACEMENT PARTS LIST

Note:

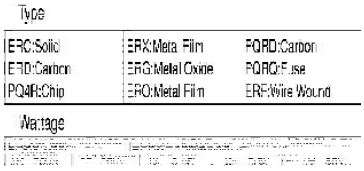
1. RTL (Retention Time Limited)

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will

continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.

2. **Important safety notice**
   Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.
3. **The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.**
4. **ISO code (Example : ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.**
5. **RESISTORS & CAPACITORS**
   Unless otherwise specified;
   All resistors are in ohms (Ω), k=1000 , M=1000k
   All capacitors are in MICRO FARADS (F), p= (F)
   ***Type & Wattage of Resistor**



19.1. CABINET AND ELECTRICAL PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	PSWQ1C10A	TILT MOTOR UNIT	ABS-HB
2	PSWQC30N	PAN MOTOR UNIT	ABS-HB
3	PSHR1338Y	ANTENNA COVER	ABS-V0
4	PSSA1032Z	ANTENNA	ABS-V0
5	PSHR1337Z	ANGLE, BOARD SUPPORT	ABS-V0
6	PSBC1042Z1	LENS BUTTON	ABS-HB
7	PSHX1232Z	SPACER	
8	PSMH1273Z	ANGLE	
9	PSJE1042Z	LEAD WIRE,SUB FLAT CABLE	
10	PSMH1275Z	ANGLE	
11	PSKM1117P1	CABINET BODY	ABS-V0
12	PSMH1291Z	ANGLE	
13	PSKF1087X1	CABINET COVER	ABS-V0
14	PSBD1017Z1	KNOB,SLIDE	
15	PSHA1014Z	RUBBER PARTS,LEGS	
16	PSME1009Z	COVER	
17	PSWP4C30A	RF UNIT	
18	PSQT2462Z	JACK LABEL	
19	PSQT2463Z	CAUTION LABEL	
20	PSMX1027Z	INSULATOR	
21	PSHR1323Y	GUIDE,PAN GEAR	ABS-HB
22	PSHX1236Y	SPACER	
23	PSKE1074Z1	EYE LEFT COVER	ABS-V0
24	PSKV1043Z1	EYE CENTER COVER	ABS-V0
25	PSKE1075Z1	EYE RIGHT COVER	ABS-V0
26	PSLP1267Z	LENS UNIT	ABS-HB
27	PSHR1335Z	SPACER	ABS-HB
28	PSNPB025050	SPACER	
29	PSMY1027Z	HEAT SINK	
30	PSMY1028Z	HEAT SINK	
31	PSMH1294Z	METAL PARTS	
32	PSMX1026Z	INSULATOR	

19.2. ACCESSORIES AND PACKING MATERIALS

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV202Y	AC ADAPTOR	
A2	PSJA1069Z	POWER CORD	
A3	PQHE5004Y	SCREW	
A4	XWG35FJ	WASHER	
A5	XZB05X08A03	PROTECTION COVER(FOR SCREWS)	
A6	PSQX3795ZCD	INSTRUCTION BOOK,CD-ROM	
A7	PSQW2373Z	LEAFLET,SAFETY	
A8	PSQX3793Z	INSTRUCTION BOOK,GS(ENGLISH)	
A9	PSQX3797Z	INSTRUCTION BOOK,GS(FRENCH)	
A10	XZB20X30A05	PROTECTION COVER(FOR CD-ROM etc.)	
A11	PSQV2046Z	WARRANTY	
P1	PSPK2332Y	GIFT BOX	
P2	PSPD1270Z	CUSHION	
P3	PSPN1174Z	ACCESSORY BOX	
P4	PSPH1012Z	PACKING SHEET	
P5	PSPE1016Z	CUSHION	
P6	PSHX1242Z	CABINET PROTEECT COVER	
P7	PSPE1011Z	CUSHION	
P8	PSPE1012Z	CUSHION	

19.3. MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PSWP1C30C	MAIN BOARD ASS'Y (RTL)	
		(ICS)	
IC51	C0CBCAC00084	IC	
IC52	C0CBCAC00060	IC	
IC62	C0DBAGZ00046	IC	
IC101	C2DBYK000004	IC	
IC102	PSWP1C30C	There is no parts supply of only IC102. Please order PCB1.	
IC103	C3ABPG000134	IC	
IC104	C1ZBZ0002444	IC	
IC105	C0EBE0000231	IC	
IC201	C1CB00001919	IC	
IC402	C0GBE0000017	IC	S
		(TRANSISTORS)	
IC61	B1DHCD000018	TRANSISTOR(SI)	
Q61	PQVTDTA143TU	TRANSISTOR(SI)	S
Q201	PQVTDTA143TU	TRANSISTOR(SI)	S
Q202	PQVTDTA143TU	TRANSISTOR(SI)	S
Q401	PQVTDTA143TU	TRANSISTOR(SI)	S
Q402	PQVTDTA143TU	TRANSISTOR(SI)	S
		(DIODES)	
D61	MA736	DIODE(SI)	S
D101	MA741WK	DIODE(SI)	S
		(CAPACITORS)	
C51	ECUV1A105ZFV	1	
C52	ECUV1A105ZFV	1	
C53	ECJ0EF1C104Z	0.1	
C54	ECJ0EF1C104Z	0.1	
C56	ECJ0EF1C104Z	0.1	
C57	ECJ0EB1H102K	0.001	
C61	PFCX1EY106ZF	10	S
C62	ECUV1E104ZFV	0.1	
C64	ECUV1C224ZFV	0.22	
C65	F4Z0J4760001	0.22	
C66	ECUV1E104ZFV	0.1	
C67	F1K0J1060020	10	
C102	ECJ0EC1H101J	100p	
C103	ECJ0EF1C104Z	0.1	
C104	ECJ0EF1C104Z	0.1	
C105	ECJ0EF1C104Z	0.1	
C106	ECJ0EF1C104Z	0.1	
C107	ECJ0EF1C104Z	0.1	
C108	ECJ0EC1H101J	100p	
C109	ECJ0EF1C104Z	0.1	
C110	ECJ0EC1H101J	100p	
C111	ECJ0EF1C104Z	0.1	
C112	ECJ0EC1H101J	100p	
C113	ECJ0EF1C104Z	0.1	
C115	ECJ0EC1H101J	100p	
C116	ECJ0EF1C104Z	0.1	

Ref. No.	Part No.	Part Name & Description	Remarks
C117	ECJ0EF1C104Z	0.1	
C118	ECJ0EF1C104Z	0.1	
C119	ECJ0EC1H101J	100p	
C120	ECJ0EF1C104Z	0.1	
C121	ECJ0EC1H101J	100p	
C122	ECJ0EF1C104Z	0.1	
C124	ECJ0EC1H101J	100p	
C125	ECJ0EF1C104Z	0.1	
C126	ECJ0EC1H101J	100p	
C127	ECJ0EF1C104Z	0.1	
C128	F1J0J1060006	10	
C129	ECJ0EC1H101J	100p	
C130	ECJ0EF1C104Z	0.1	
C131	ECJ0EC1H101J	100p	
C132	ECJ0EF1C104Z	0.1	
C133	ECJ0EC1H101J	100p	
C134	ECJ0EF1C104Z	0.1	
C135	ECJ0EC1H101J	100p	
C136	ECJ0EF1C104Z	0.1	
C137	ECJ0EC1H101J	100p	
C138	ECJ0EF1C104Z	0.1	
C139	ECJ0EC1H101J	100p	
C140	ECJ0EF1C104Z	0.1	
C141	ECJ0EC1H101J	100p	
C142	ECJ0EF1C104Z	0.1	
C143	F1J0J1060006	10	
C144	ECJ0EC1H101J	100p	
C145	ECJ0EF1C104Z	0.1	
C146	F1J0J1060006	10	
C147	ECJ0EC1H101J	100p	
C148	ECJ0EF1C104Z	0.1	
C149	ECUV1A105ZFV	1	
C150	ECJ0EF1C104Z	0.1	
C151	ECJ0EC1H330J	33p	
C152	ECUV1C224ZFV	0.22	
C154	ECJ0EF1C104Z	0.1	
C155	ECJ0EC1H121J	120p	
C156	ECJ0EF1C104Z	0.1	
C157	ECJ0EF1C104Z	0.1	
C158	ECJ0EC1H121J	120p	
C159	ECJ0EC1H121J	120p	
C160	ECJ0EC1H121J	120p	
C161	ECJ0EC1H121J	120p	
C162	ECJ0EC1H121J	120p	
C163	ECJ0EC1H121J	120p	
C164	ECJ0EC1H121J	120p	
C165	ECJ0EC1H121J	120p	
C166	ECJ0EC1H121J	120p	
C167	ECJ0EC1H221J	220p	
C202	ECJ0EC1H101J	100p	
C203	ECJ0EC1H101J	100p	
C204	ECJ0EC1H101J	100p	
C205	ECJ0EC1H101J	100p	
C206	ECJ0EC1H101J	100p	
C207	ECJ0EC1H101J	100p	
C208	ECJ0EF1C104Z	0.1	
C209	ECJ0EC1H270J	27p	

Ref. No.	Part No.	Part Name & Description	Remarks
C210	ECJ0EC1H330J	33p	
C211	ECJ0EF1C104Z	0.1	
C212	ECJ0EF1C104Z	0.1	
C213	ECJ0EF1C104Z	0.1	
C214	ECJ0EF1C104Z	0.1	
C215	ECJ0EF1C104Z	0.1	
C216	ECJ0EF1C104Z	0.1	
C217	ECJ0EF1C104Z	0.1	
C218	ECJ0EB1H102K	0.001	
C219	ECJ0EC1H040C	4p	
C221	ECJ0EF1C104Z	0.1	
C222	ECJ0EC1H221J	220p	
C223	ECJ0EF1C104Z	0.1	
C402	ECJ0EF1C104Z	0.1	
C404	ECJ0EF1C104Z	0.1	
C414	ECJ0EF1C104Z	0.1	
C415	ECJ0EF1C104Z	0.1	
C416	ECJ0EF1C104Z	0.1	
C417	F1J0J1060006	10	
C418	F1J0J1060006	10	
C419	ECJ0EC1H330J	33p	
C420	ECJ0EF1C104Z	0.1	
C421	ECJ0EC1H101J	100p	
C422	ECJ0EC1H150J	15p	
		(CONNECTORS)	
CN51	K1KB20B00045	CONNECTOR,20P	
CN101	PQJS15A94Z	CONNECTOR,15P	S
CN201	K1KA20A00303	CONNECTOR,20P	
CN401	K1MN04B00042	CONNECTOR,4P	
CN402	K1MN28B00058	CONNECTOR,28P	
		(COILS AND CERAMIC FILTER)	
L61	G1A220GA0005	COIL	
L101	G1C100K00031	COIL	
L102	J0JCC0000368	CERAMIC FILTER	
L103	EXC28BA221U	CERAMIC FILTER	
L104	EXC28BA221U	CERAMIC FILTER	
L105	EXC28BA221U	CERAMIC FILTER	
L106	EXC28BA221U	CERAMIC FILTER	
L107	J0JCC0000368	CERAMIC FILTER	
L108	J0JCC0000368	CERAMIC FILTER	
L109	J0JCC0000368	CERAMIC FILTER	
L110	J0JCC0000368	CERAMIC FILTER	
L111	J0JCC0000368	CERAMIC FILTER	
L112	J0JCC0000368	CERAMIC FILTER	
L202	G1CR12J00003	COIL	
L203	J0JDC0000076	CERAMIC FILTER	
L204	J0JDC0000076	CERAMIC FILTER	
L404	J0JCC0000192	COIL	
L405	J0JCC0000192	COIL	
L406	J0JCC0000192	COIL	
L407	J0JCC0000192	COIL	
L408	J0JCC0000149	COIL	
L409	J0JCC0000149	COIL	
L410	J0JCC0000149	COIL	
L411	J0JCC0000149	COIL	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
		(RESISITORS)	
R61	ERJ3GEYJ100	10	
R62	ERJ3GEYJ100	10	
R63	ERJ3GEYJ244	240k	
R64	ERJ6GEY0R00	0	
R106	ERJ2GEJ470	47	
R107	ERJ2GEJ470	47	
R108	ERJ2GEJ470	47	
R109	ERJ2GEJ470	47	
R111	ERJ2GEJ470	47	
R112	ERJ2GEJ470	47	
R113	ERJ2GEJ470	47	
R115	ERJ2GEJ470	47	
R116	ERJ2GEJ470	47	
R117	ERJ2GEJ470	47	
R118	ERJ2GEJ470	47	
R121	ERJ2GEJ470	47	
R122	ERJ2GEJ470	47	
R123	ERJ2GEJ103	10k	
R124	ERJ2GE0R00	0	
R125	ERJ2GEJ103	10k	
R127	ERJ2GEJ221	220	
R128	ERJ2GEJ103	10k	
R130	ERJ2GEJ221	220	
R131	ERJ2GEJ103	10k	
R132	ERJ2GEJ472X	4.7k	
R133	ERJ2GEJ472X	4.7k	
R134	ERJ2GEJ103	10k	
R135	ERJ2GEJ471	470	
R136	ERJ2GEJ103	10k	
R137	ERJ2GEJ102	1k	
R138	ERJ2GEJ103	10k	
R139	ERJ2GEJ103	10k	
R148	ERJ2GEJ103	10k	
R149	ERJ2GEJ103	10k	
R150	ERJ2GEJ103	10k	
R151	ERJ2GEJ103	10k	
R152	ERJ2GEJ103	10k	
R153	ERJ2GEJ103	10k	
R154	ERJ2GEJ103	10k	
R155	ERJ2GEJ103	10k	
R157	ERJ2GEJ470	47	
R160	ERJ2GEJ103	10k	
R161	ERJ2GEJ103	10k	
R162	ERJ2GE0R00	0	
R163	ERJ2GEJ470	47	
R165	ERJ2GEJ470	47	
R201	ERJ2GEJ470	47	
R202	ERJ2GEJ470	47	
R203	ERJ2GEJ470	47	
R204	ERJ2GEJ470	47	
R205	ERJ2GEJ470	47	
R206	ERJ2GEJ470	47	
R207	ERJ2GEJ102	1k	
R209	ERJ2GEJ103	10k	
R211	ERJ2GEJ103	10k	

Ref. No.	Part No.	Part Name & Description	Remarks
R212	ERJ2GEJ103	10k	
R213	ERJ2GEJ103	10k	
R214	ERJ2GEJ103	10k	
R215	ERJ2GEJ103	10k	
R217	ERJ3EKF1002	10k	
R218	ERJ3EKF1541	1.54k	
R219	ERJ3EKF2001	2k	
R220	ERJ3EKF56R2	56.2	
R221	ERJ3EKF56R2	56.2	
R224	ERJ2GE0R00	0	
R225	ERJ3EKF51R1	51.1	
R226	ERJ3EKF51R1	51.1	
R401	ERJ2GEJ330	33	
R402	ERJ2GE0R00	0	
R404	ERJ2GEJ103	10k	
		(COMPONENTS PARTS)	
RA106	D1H84704A024	COMPONENTS PARTS	
RA107	D1H81034A024	COMPONENTS PARTS	
RA108	D1H84704A024	COMPONENTS PARTS	
RA109	D1H84704A024	COMPONENTS PARTS	
RA110	D1H84704A024	COMPONENTS PARTS	
RA111	D1H84704A024	COMPONENTS PARTS	
RA114	D1H84704A024	COMPONENTS PARTS	
RA201	D1H84704A024	COMPONENTS PARTS	
RA401	D1H82214A024	COMPONENTS PARTS	
RA402	D1H82214A024	COMPONENTS PARTS	
		(SWITCH)	
SW201	K0D122A00098	SWITCH	
SW202	K0D122A00098	SWITCH	
		(CRYSTAL OSCILLATOR)	
X201	H0J250500028	CRYSTAL OSCILLATOR	
		(OTHERS)	
E1	PSHX1228Z	PLASTIC PARTS	

19.4. I/O BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PSWP2C30N	I/O BOARD ASS'Y (RTL)	
		(ICS)	
IC2	C0DBAGZ00046	IC	
		(TRANSISTORS)	
IC1	B1DHCD000018	TRANSISTOR(SI)	
Q1	PQVTDTC143E	TRANSISTOR(SI)	S
		(DIODES)	
D1	MA736	DIODE(SI)	S
D2	MA3082	DIODE(SI)	S
D3	MA736	DIODE(SI)	S
D4	MA111	DIODE(SI)	S
		(BATTERY)	
BAT1	CR-1632/1HF	BATTERY	
		(CAPACITORS)	
C1	F2A1C2220066	2200	
C2	PFCX1EY106ZF	10	S
C4	ECUV1A105ZFV	1	
C5	ECUV1C224ZFV	0.22	
C6	F4Z0J4760001	47	
C7	ECUV1E104ZFV	0.1	
C8	ECJ3YB0J106K	10	
C10	F1K3A222A002	0.1	
C11	ECUV1E104ZFV	0.1	
C12	ECUV1E104ZFV	0.1	
C13	ECUV1E104ZFV	0.1	
C14	ECUV1H102KBV	0.001	
C15	ECUV1E104ZFV	0.1	
C16	ECJ0EF1C104Z	0.1	
C17	ECUV1A105ZFV	1	
		(JACKS AND CONNECTORS)	
CN1	K2ED2A000001	JACK/SOCKET	
CN2	K2LC108A0007	JACK/SOCKET	
CN3	K1KA20A00317	CONNECTOR	
		(COILS)	
L1	G0B150G00002	COIL	
L2	G1C6R8Z00005	COIL	
L3	G1C220ZA0011	COIL	
L4	G1C100M00027	COIL	
		(RESISITORS)	
R1	ERJ3GEYJ103	10k	
R2	ERJ3GEYJ100	10	
R3	ERJ3GEYJ244	240k	
R4	ERJ3GEYJ122	1.2k	
R5	ERJ3GEYJ750	75	
R6	ERJ3GEYJ750	75	
R8	ERJ3GEYJ750	75	
R9	ERJ3GEYJ750	75	
R10	ERJ3GEYJ100	10	
R12	ERJ2GEJ101	100	
R13	ERJ2GEJ272	2.7k	

Ref. No.	Part No.	Part Name & Description	Remarks
		(VARISTORS)	
SA1	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA2	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA3	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA4	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
SA5	D4ZZ00000024	VARISTOR (SAUGE ABSORBER)	
		(TRANSFORMER)	
T1	G5B1C0000011	TRANSFORMER	
		(OTHERS)	
E10	PSHG1265Z	RUBBER PARTS	

19.5. SUB BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB3	PSWP3C30N	SUB BOARD ASS'Y (RTL)	
		(ICS)	
IC801	L2CD00000021	PHOTO ELECTRIC TRANSDUCER	
IC802	C0ABBA000025	IC	
IC803	C0BBBA000044	IC	
IC804	C0CBABC00119	IC	
		(TRANSISTORS)	
Q801	PQVTDTC143E	TRANSISTOR(SI)	S
Q802	PQVTDTC143E	TRANSISTOR(SI)	S
		(DIODES)	
D801	MA111	DIODE(SI)	S
LED801	B3AGB0000027	DIODE(SI)	
		(CAPACITORS)	
C801	ECJ0EB1H102K	0.001	
C802	ECJ0EB1C223K	0.022	
C803	ECJ3YB0J106K	10	
C804	ECJ0EB1H102K	0.001	
C805	ECJ0EB1A104K	0.1	
C806	ECJ3YB0J106K	10	
C807	ECJ0EB1A104K	0.1	
C808	ECJ0EB1H102K	0.001	
C809	ECJ0EB1A104K	0.1	
C810	ECJ3YF1A106Z	10	
C811	ECJ3YF1A106Z	10	
C812	ECJ0EB1A104K	0.1	
C814	ECJ3YF1A106Z	10	
C815	ECJ0EF1C104Z	0.1	
C816	ECUV1E104ZFV	0.1	
C818	ECUV1E105ZF	1	
C819	ECJ0EB1H102K	0.001	
		(CONNECTOR)	
CN801	PQJS15A94Z	CONNECTOR,15P	S

Ref. No.	Part No.	Part Name & Description	Remarks
		(COIL)	
L801	G1C100K00031	COIL	
		(RESISTORS)	
R801	ERJ2GEJ473	47k	
R802	ERJ2RHD103	10k	
R803	ERJ2GE0R00	0	
R804	D1BA1504A015	1.5M	
R805	ERJ2RHD103	10k	
R806	ERJ2GEJ104	100k	
R807	D1BA1504A015	1.5M	
R808	ERJ2GEYJ474	470k	S
R809	ERJ2GEJ244	240k	
R810	ERJ3GEYJ560	56	
R811	ERJ3GEYJ750	75	
R812	ERJ2RKF3303	330k	
R813	ERJ2RKF2003	200k	
R814	ERJ2RKF1203	120k	
R818	ERJ2GEJ102	1k	
R819	ERJ2GEJ103	10k	
		(SWITCH)	
SW801	K0H1BA000401	SWITCH	
SW802	K0H1BA000401	SWITCH	

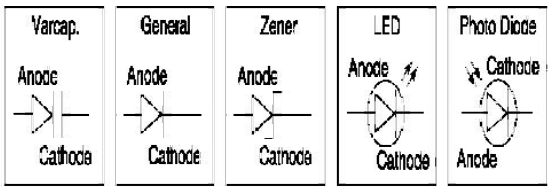
19.6. GREASE

Ref. No.	Part No.	Part Name & Description
EC1	PSZYC10A	GREASE

20. FOR THE SCHEMATIC DIAGRAM

Note:

1. **DC voltage measurements are taken with an oscilloscope or a tester with a ground.**
2. **The schematic diagrams and circuit board may be modified at any time with the development of new technology.**



Important safety notice
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of there components, use only manufacturer's specified parts.

21. SCHEMATIC DIAGRAM

21.1. WAVEFORM

22. CIRCUIT BOARD

22.1. MAIN BOARD (COMPONENT VIEW)

22.2. MAIN BOARD (BOTTOM VIEW)

22.3. I/O BOARD (COMPONENT VIEW)

22.4. I/O BOARD (BOTTOM VIEW)

22.5. SUB BOARD (COMPONENT VIEW)

22.6. SUB BOARD (BOTTOM VIEW)

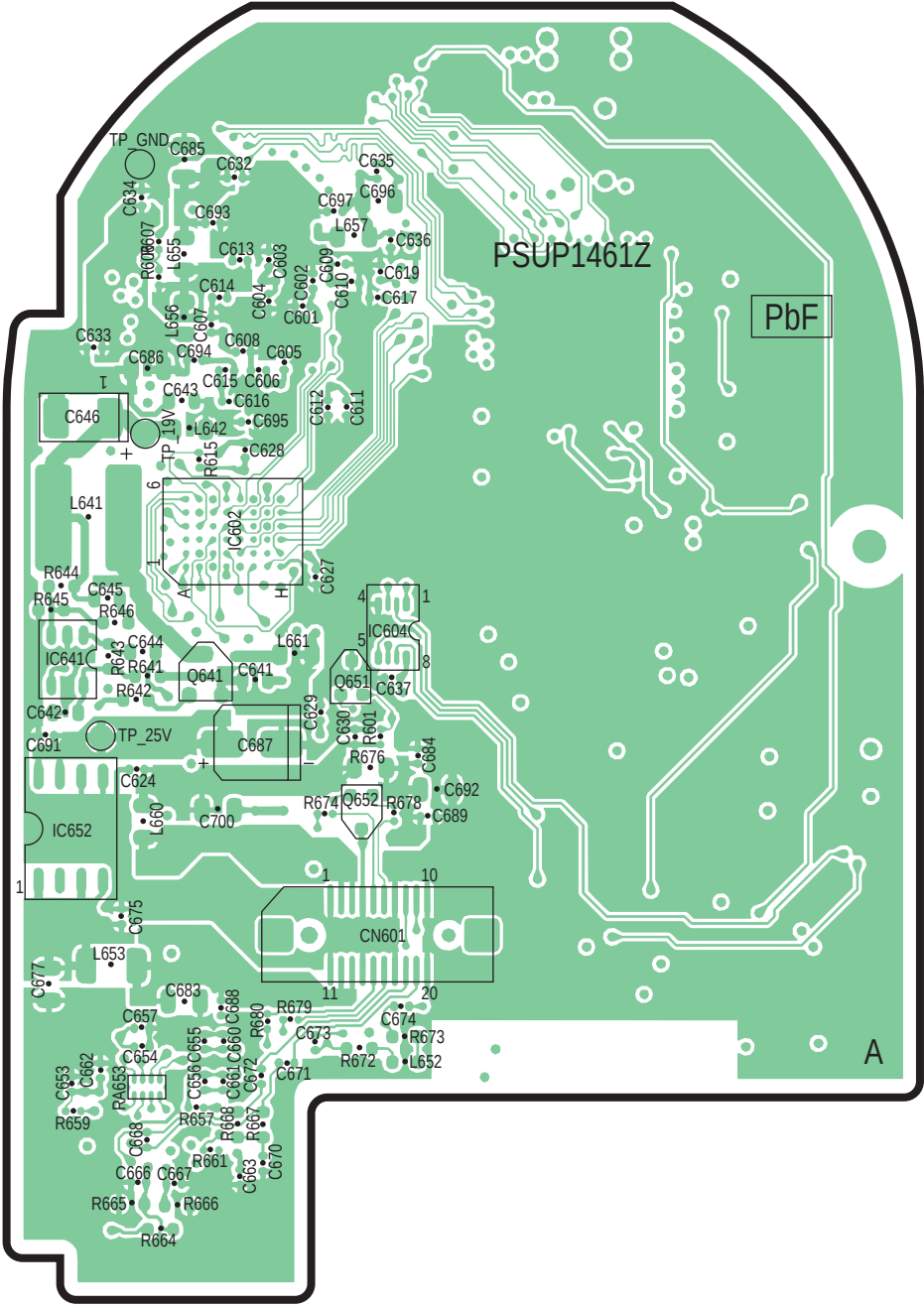
22.7. LENS BOARD (COMPONENT VIEW)

22.8. LENS BOARD (BOTTOM VIEW)

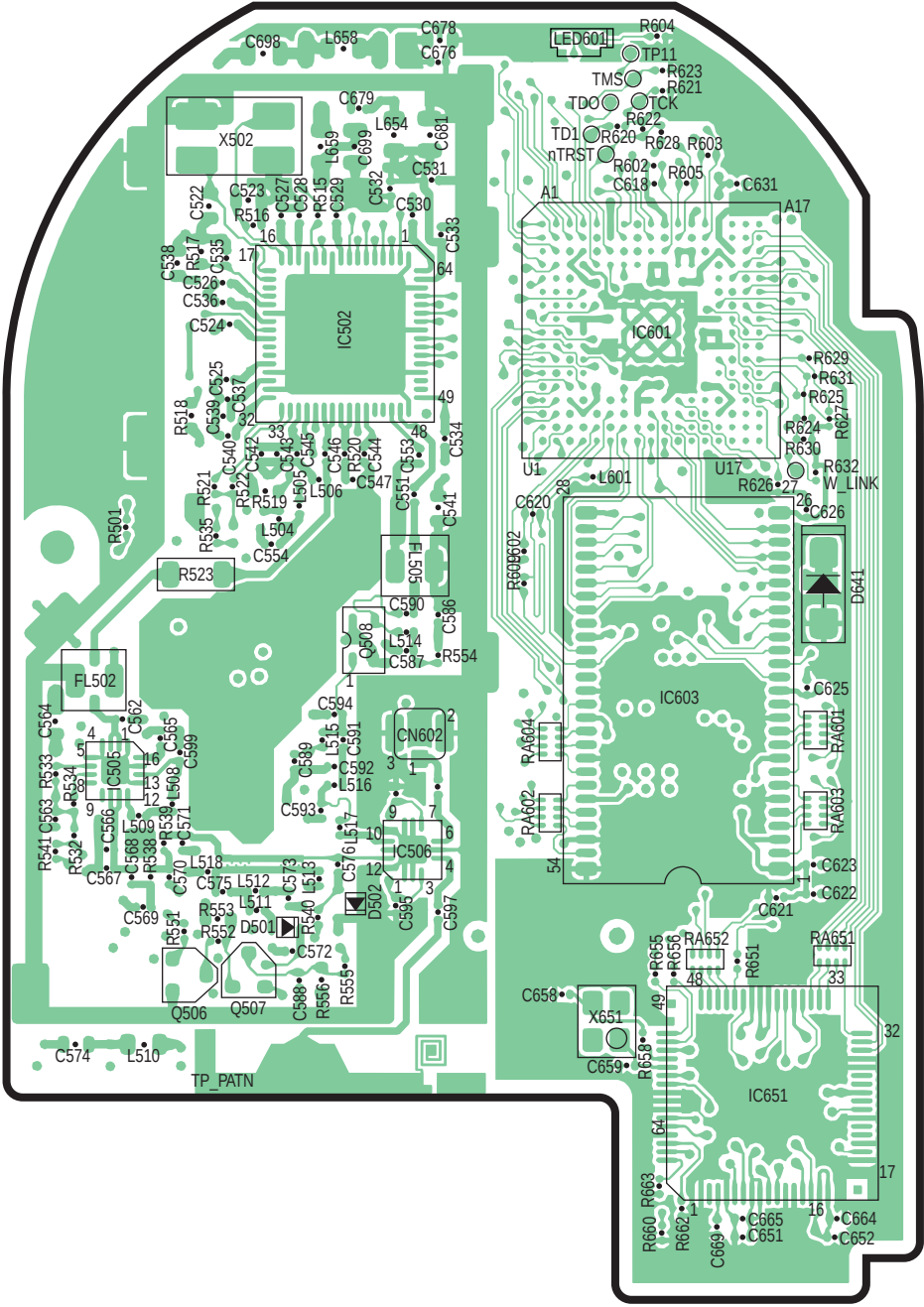
22.9. RF BOARD (COMPONENT VIEW)

22.10. RF BOARD (BOTTOM VIEW)

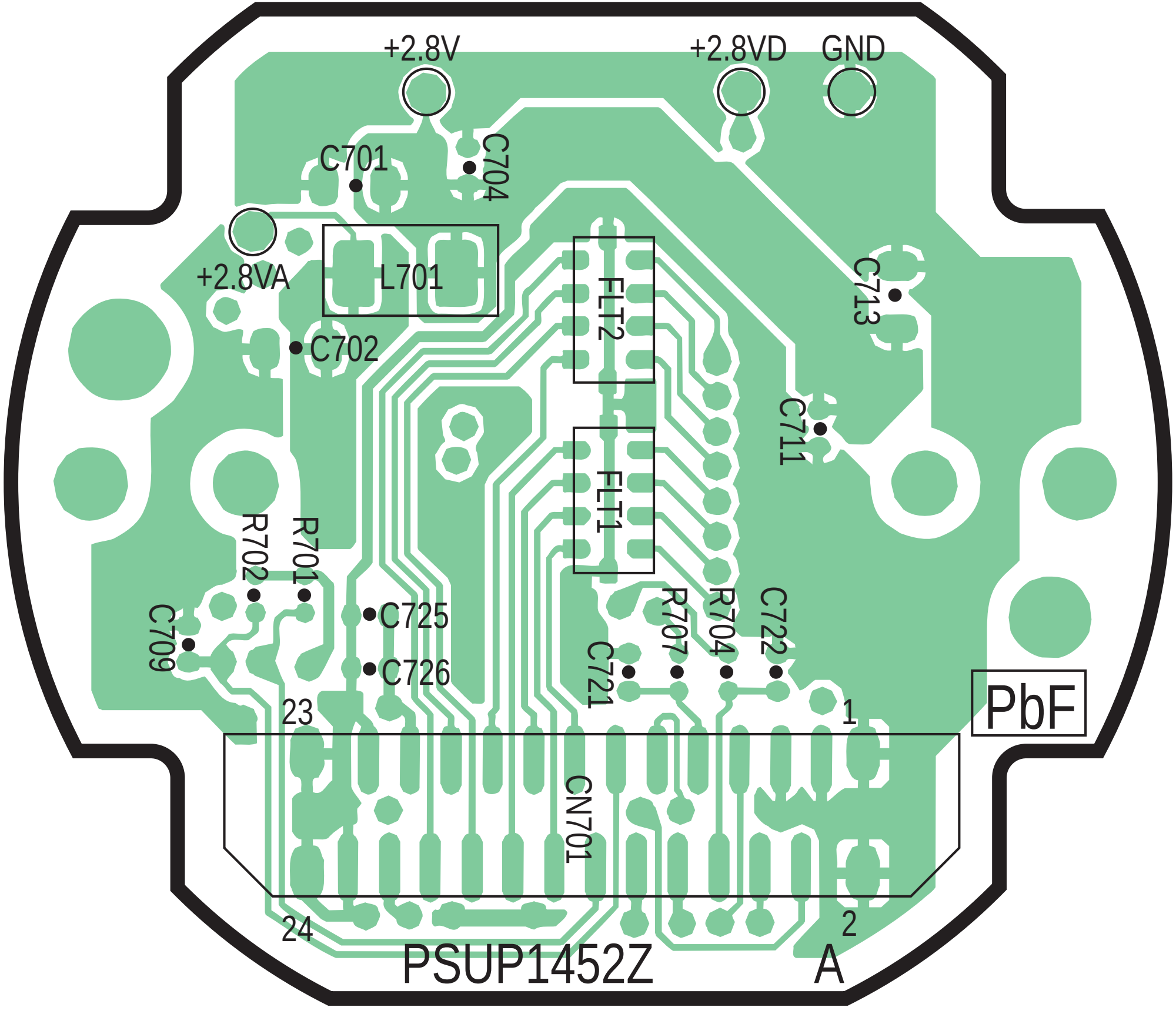
A / BLC30C



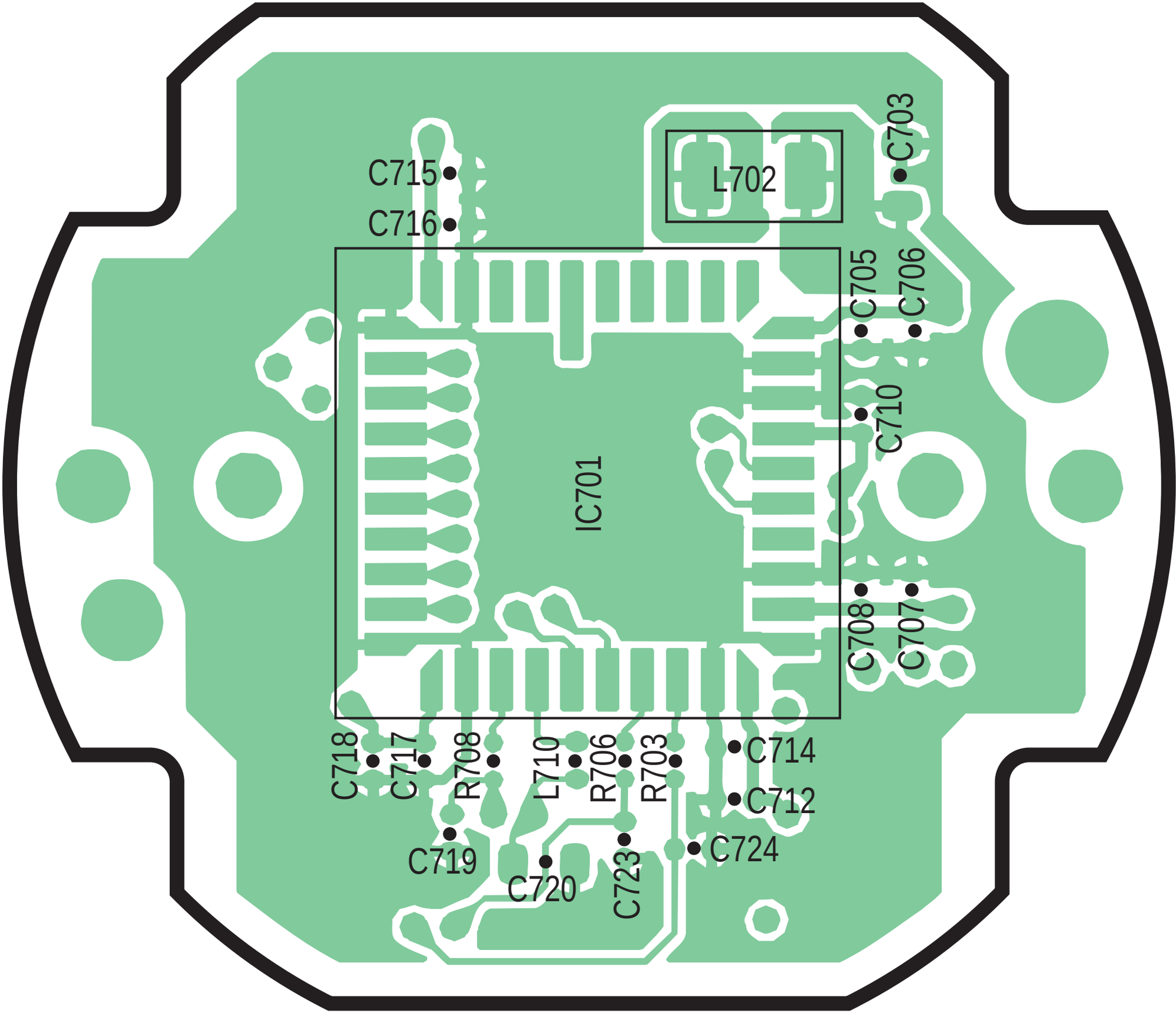
BL-C30 RF BOARD



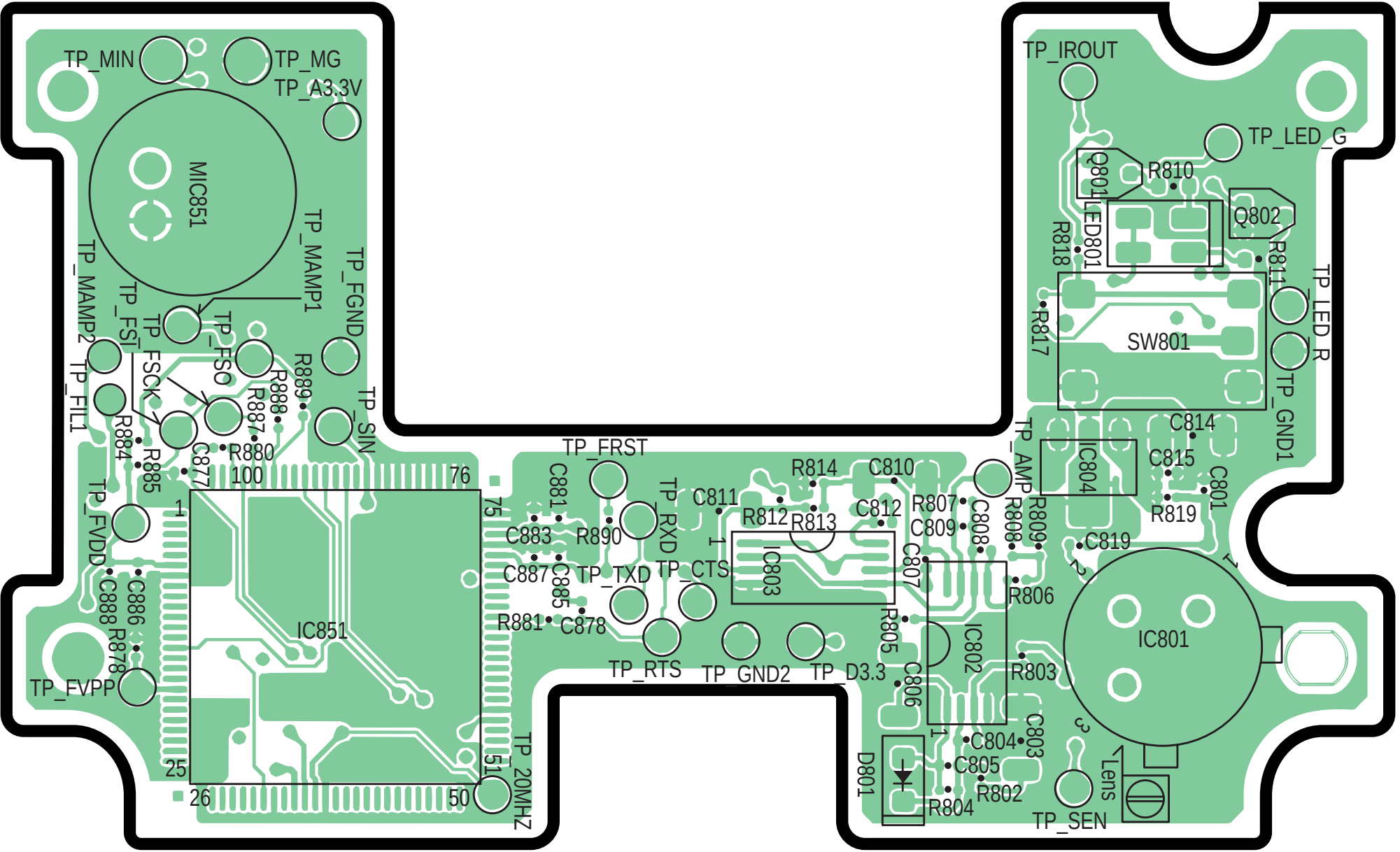
BL-C30 RF BOARD



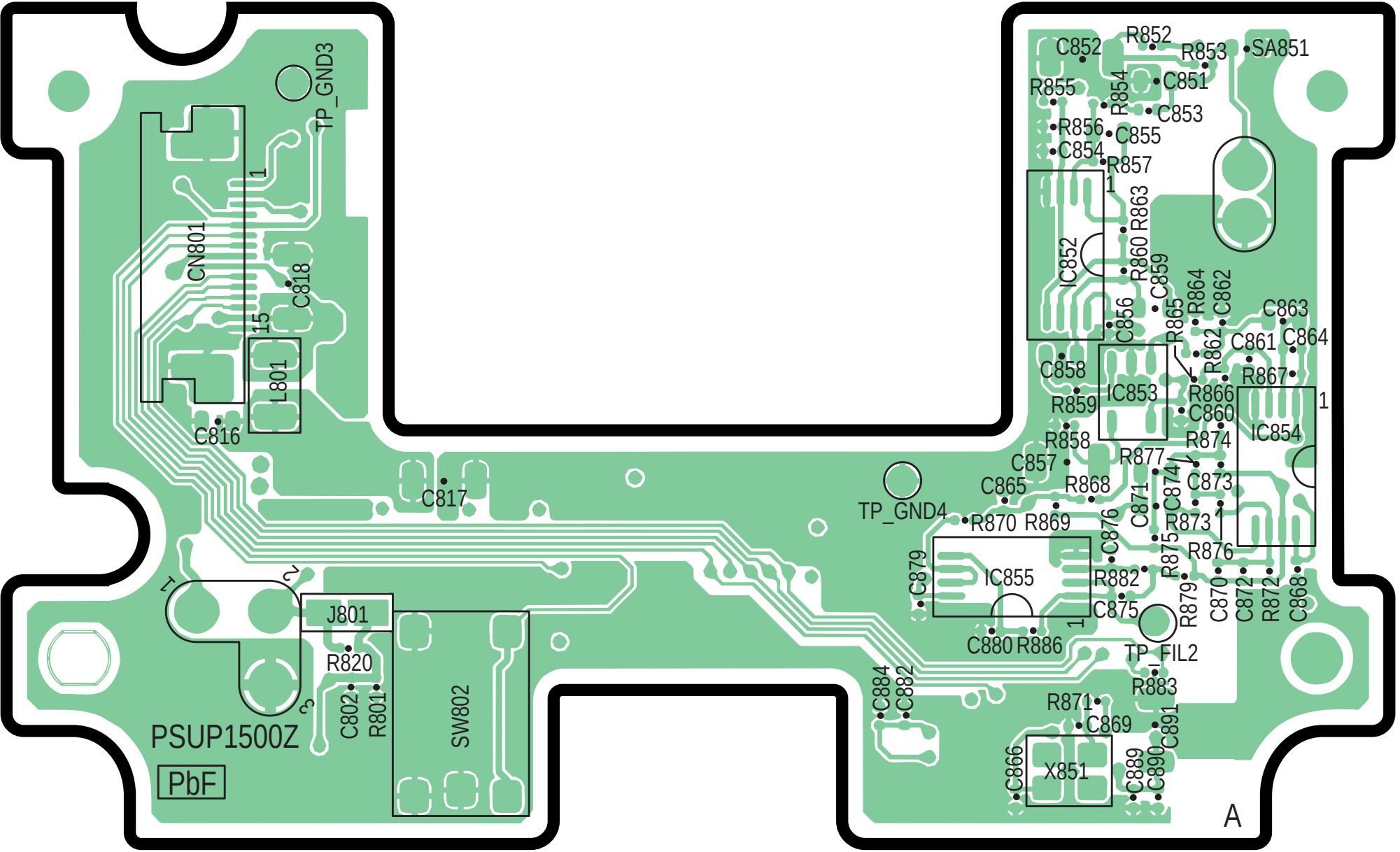
BL-C30 LENS BOARD



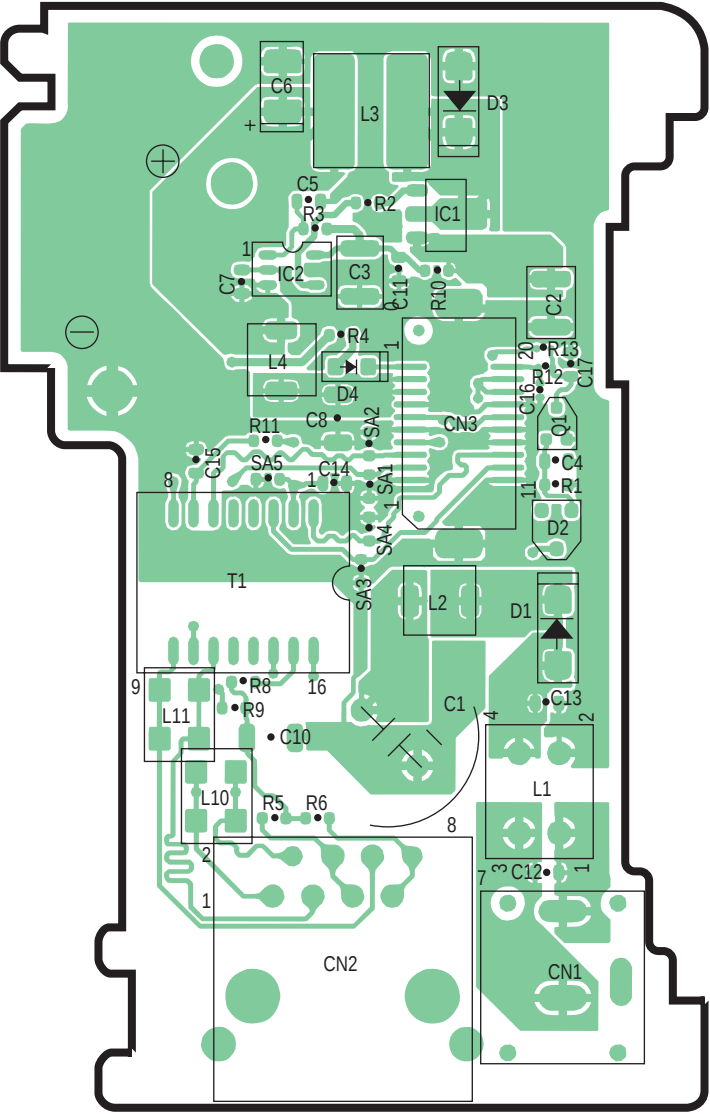
BL-C30 LENS BOARD



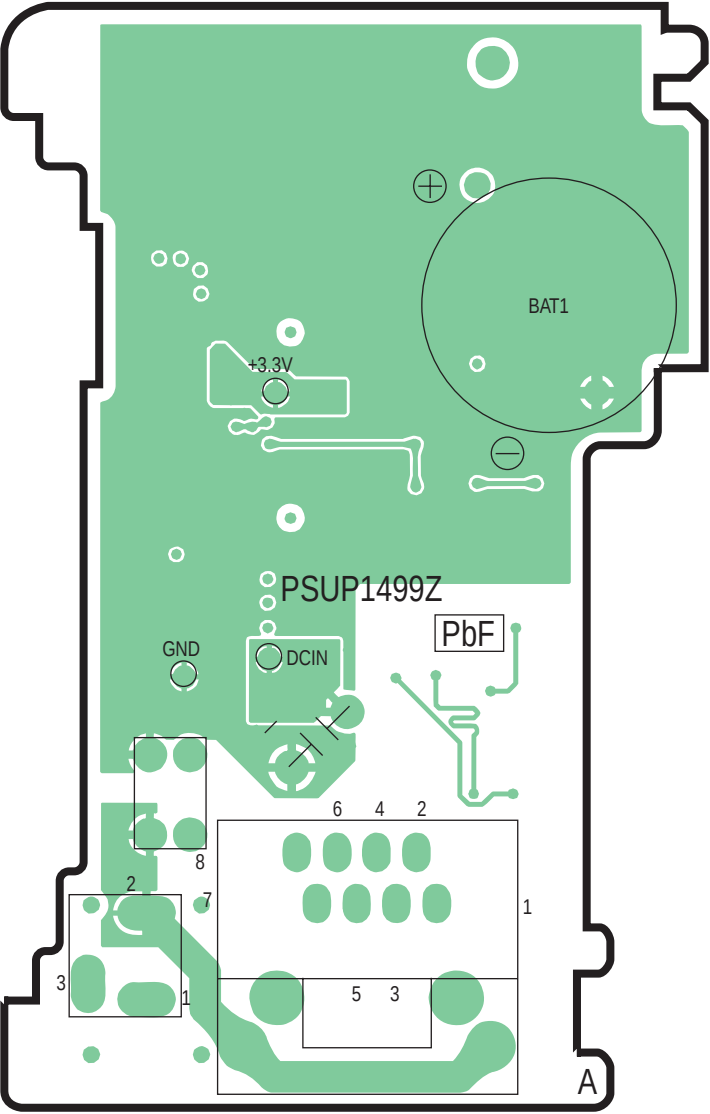
BL-C30 SUB BOARD



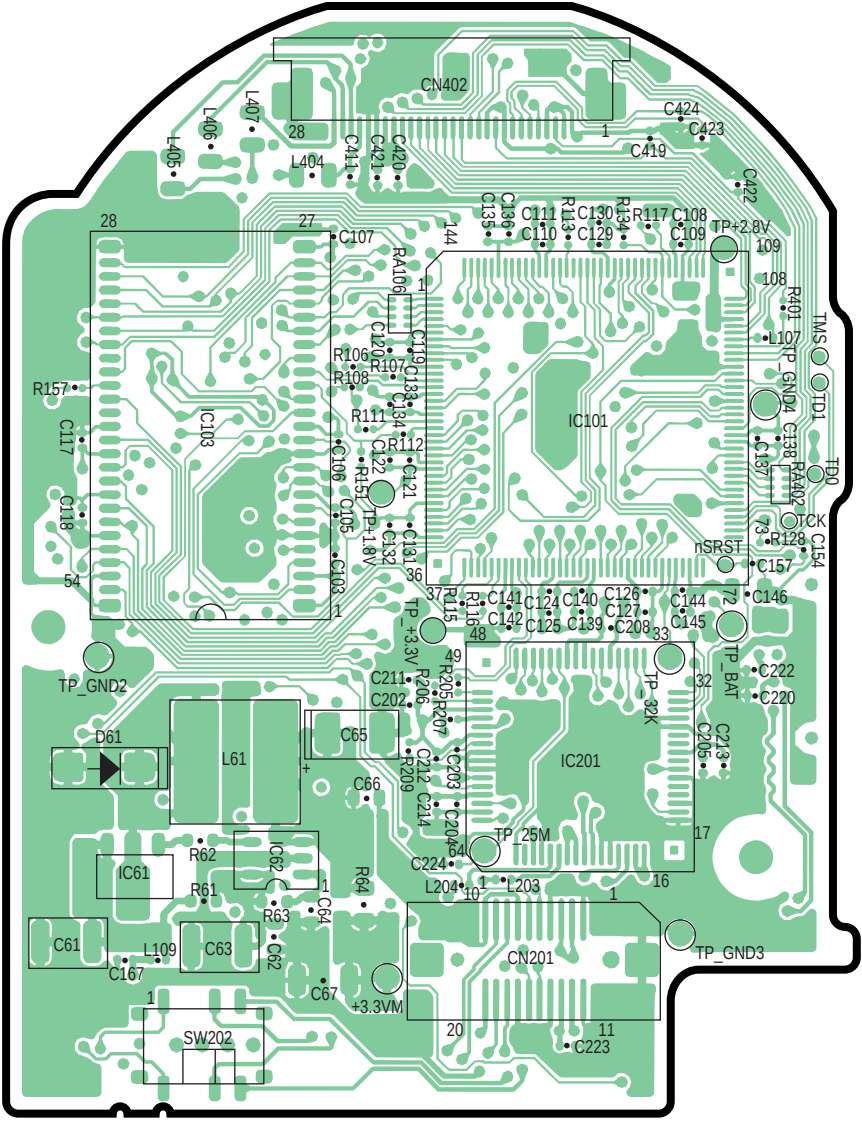
BL-C30 SUB BOARD



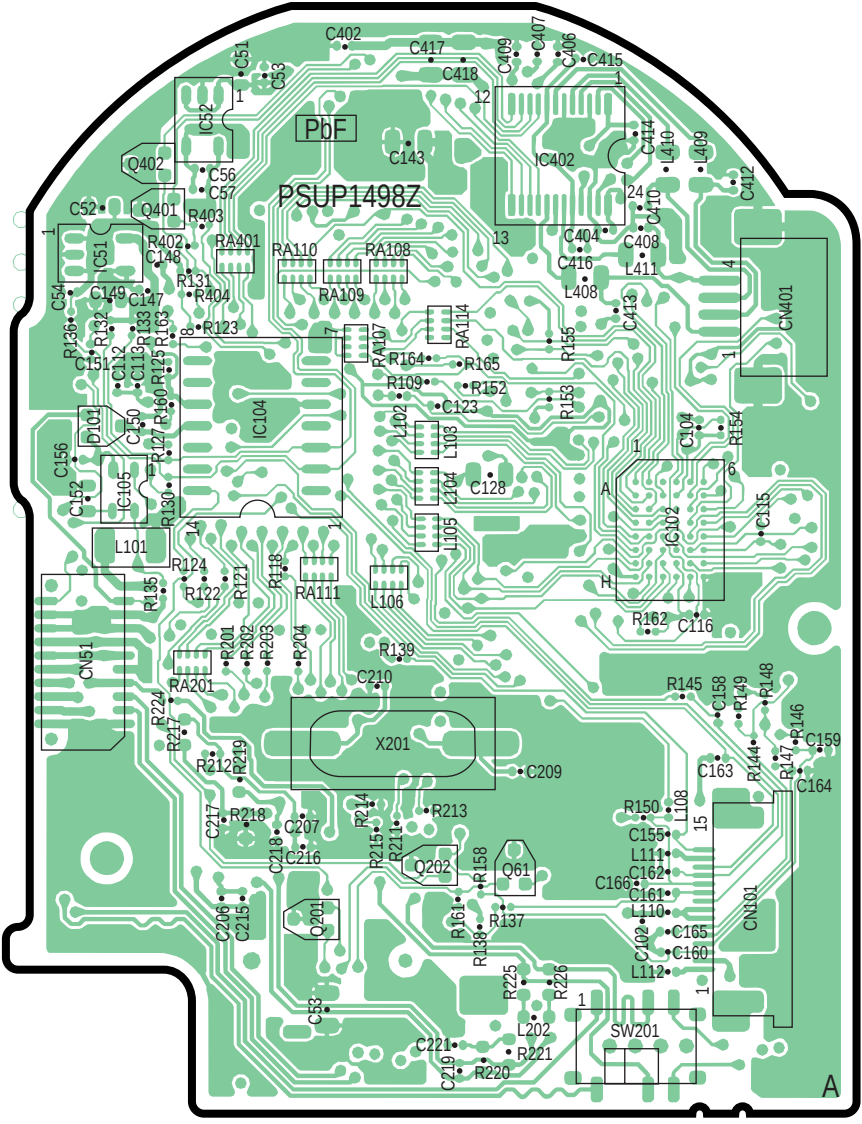
BL-C30 I/O BOARD



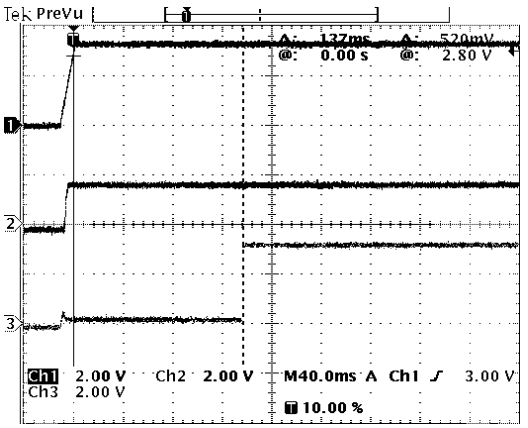
BL-C30 I/O BOARD



BL-C30 MAIN BOARD



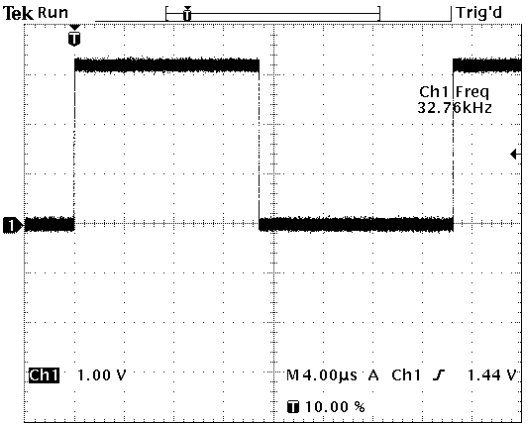
BL-C30 MAIN BOARD



A1

A2

A3



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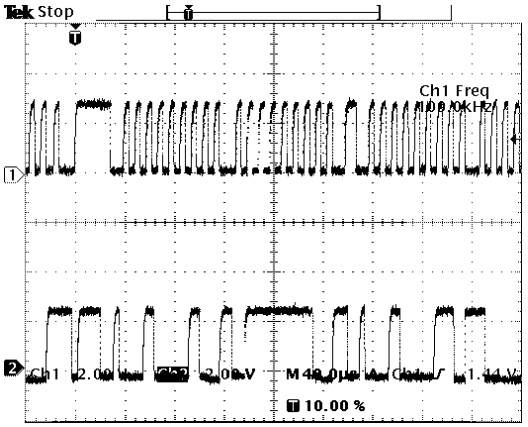
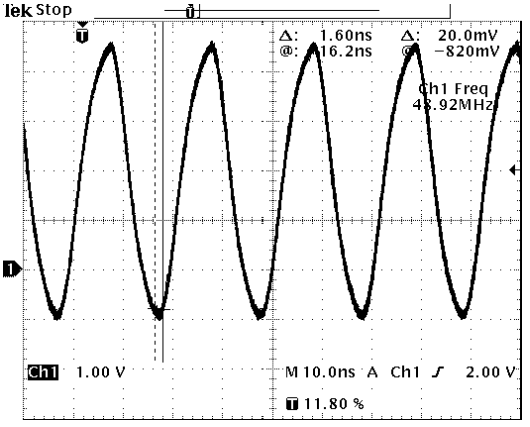
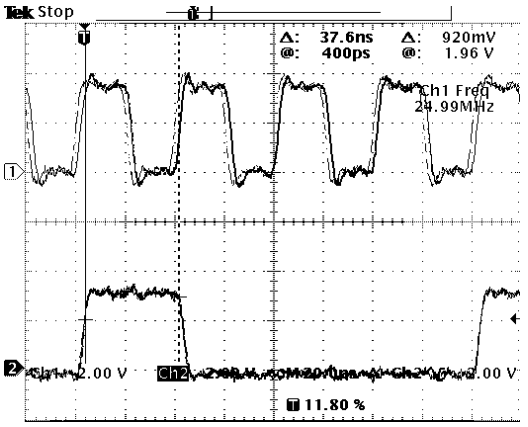


C1

C2



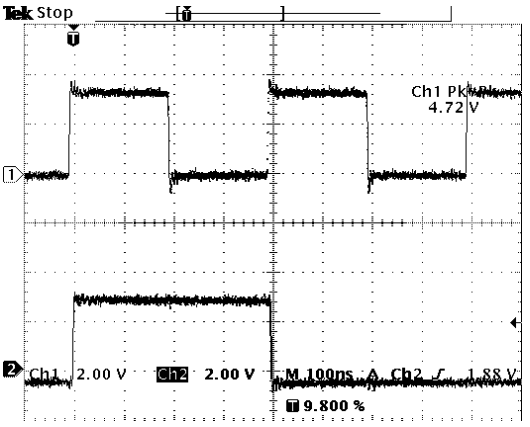
D



E1

E2

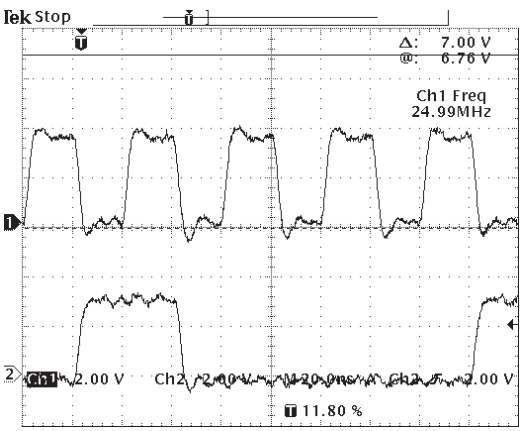
100M Communication



E1

E2

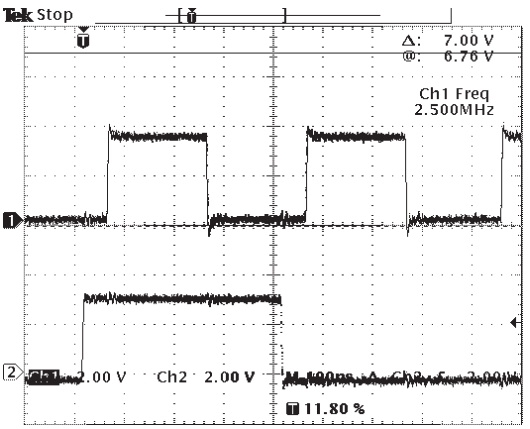
10M Communication



E3

E4

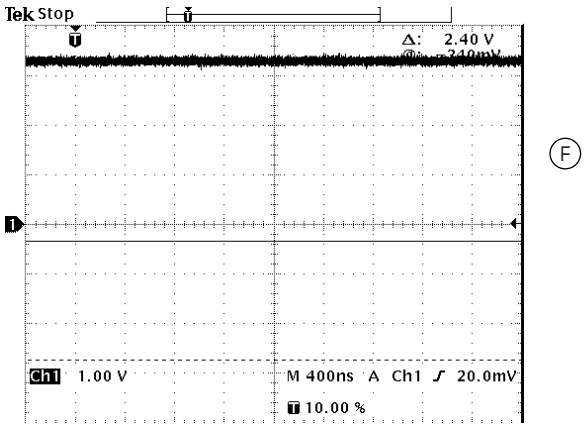
100M Communication



E3

E4

10M Communication



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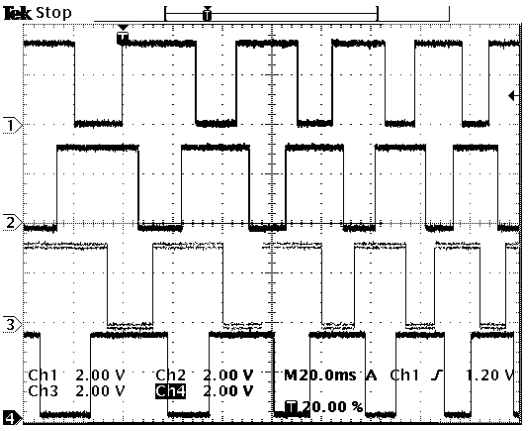
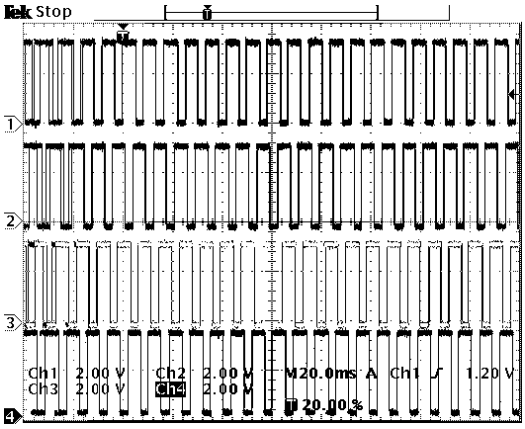


G1

G2

G3

G4

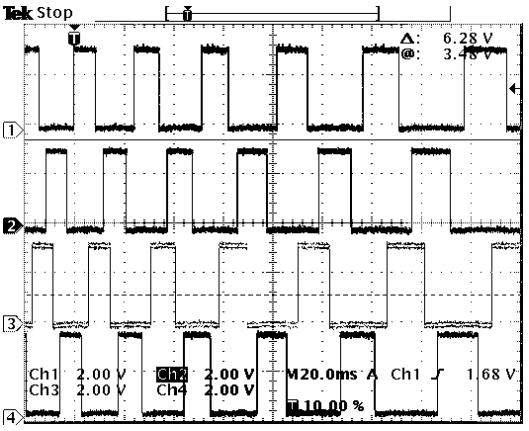


H1

H2

H3

H4

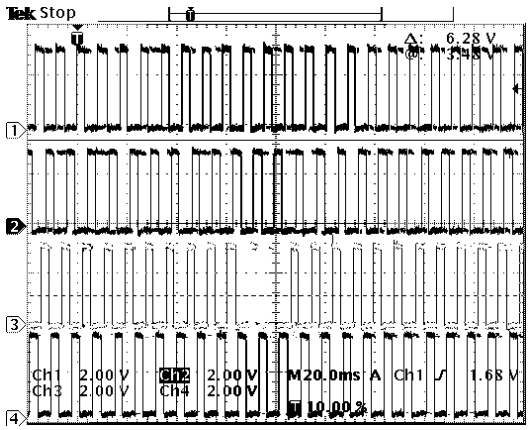


I1

I2

I3

I4

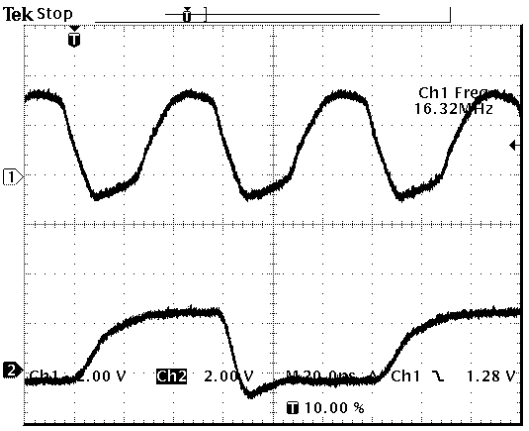


J1

J2

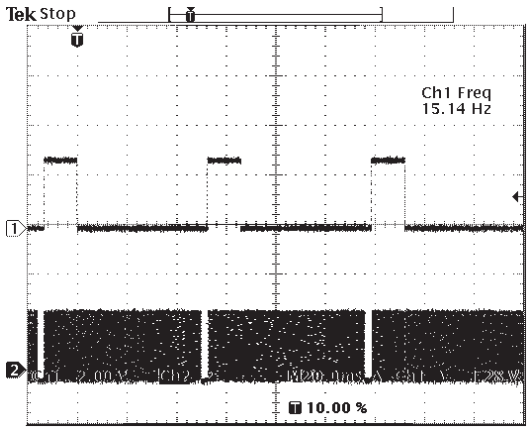
J3

J4



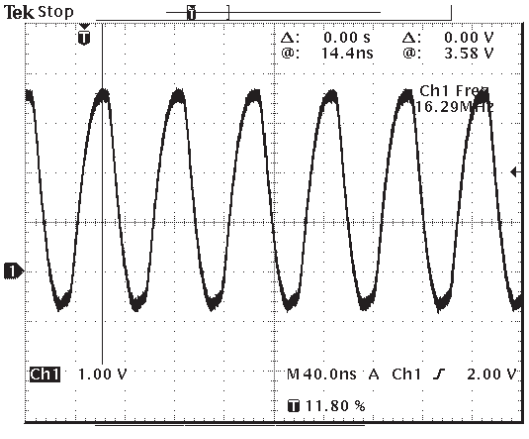
K1

K2

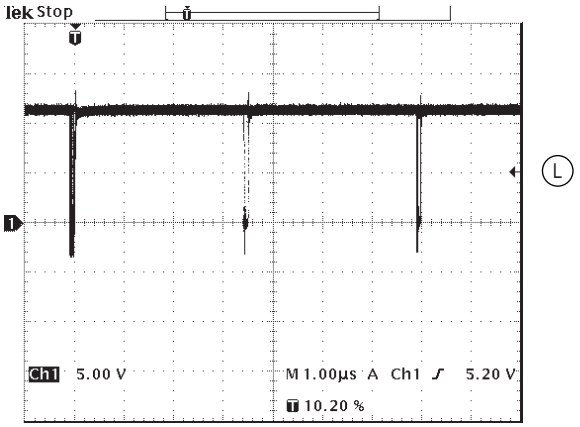


K3

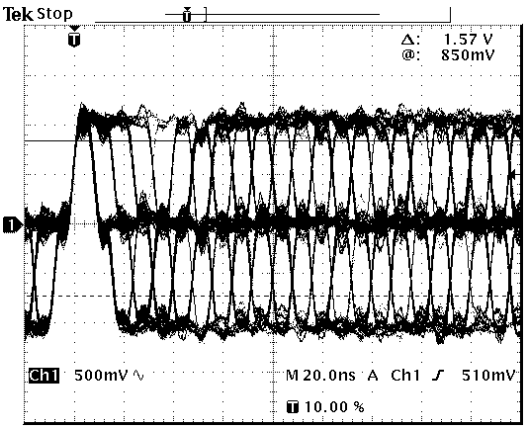
K4



K5

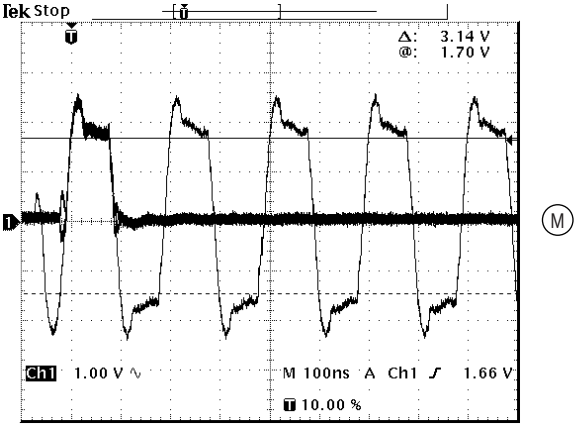


(L)



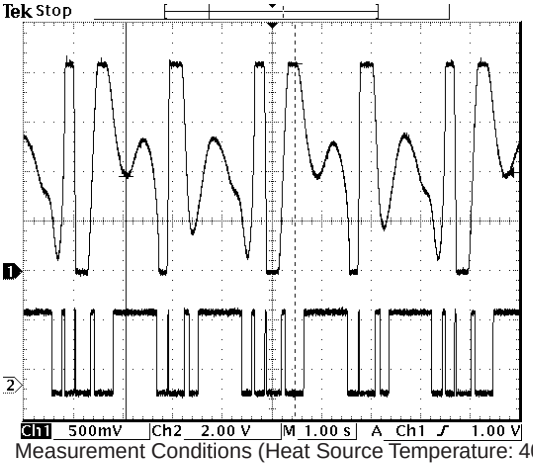
(M)

100M Communication (HUB Connection)



(M)

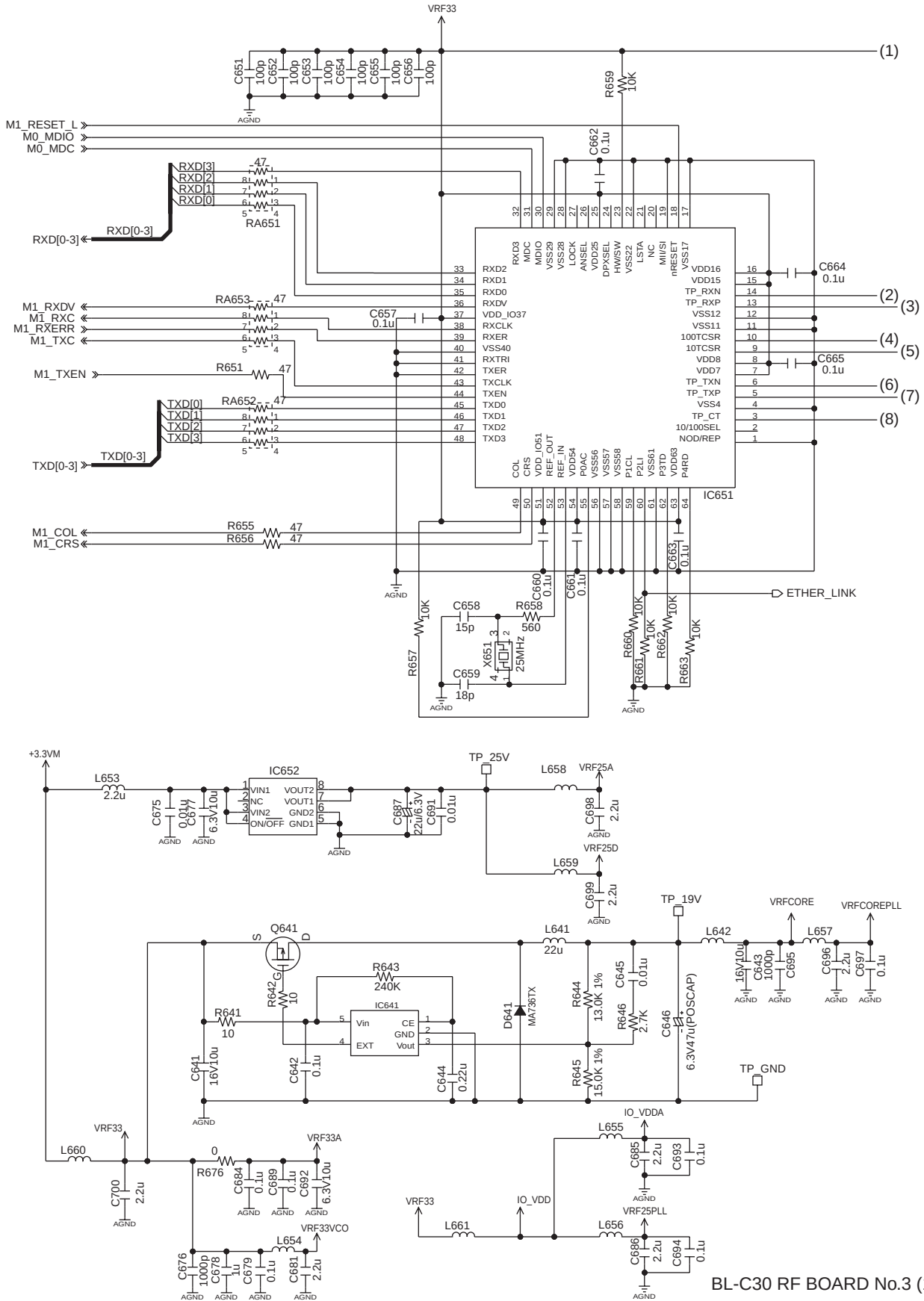
10M Communication (HUB Connection)



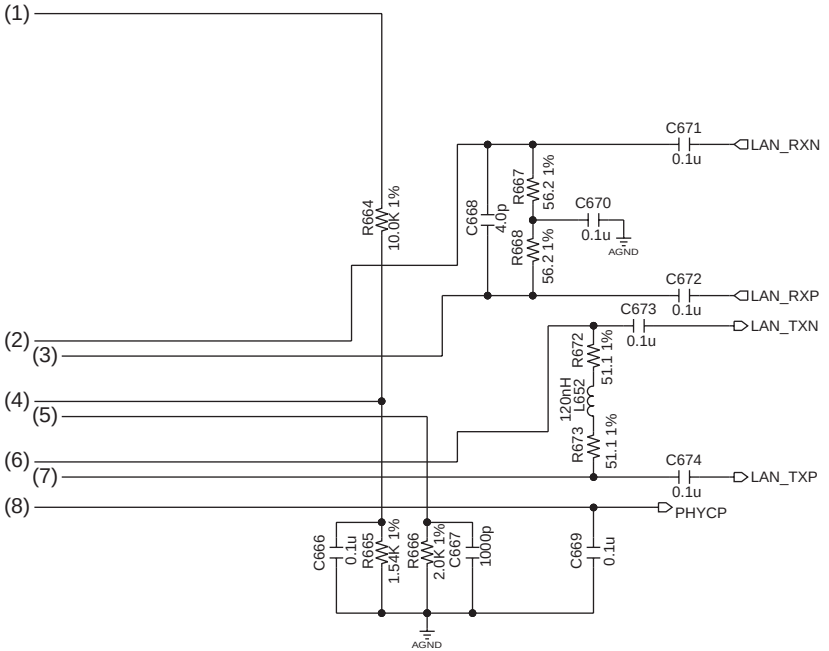
(N1)

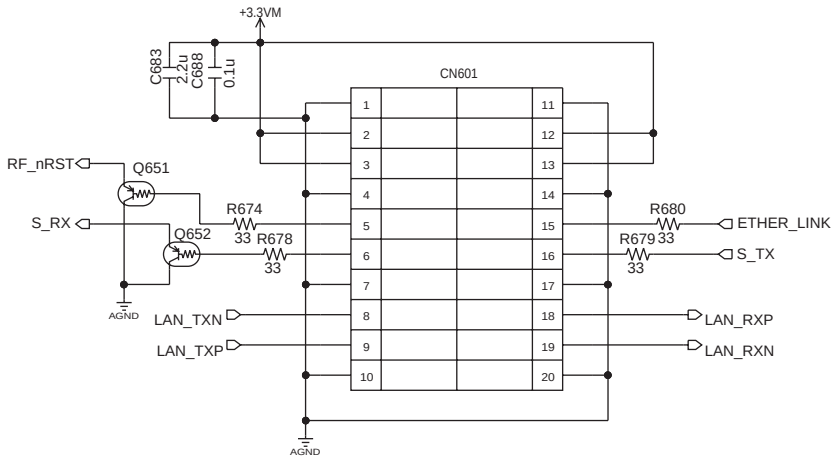
(N2)

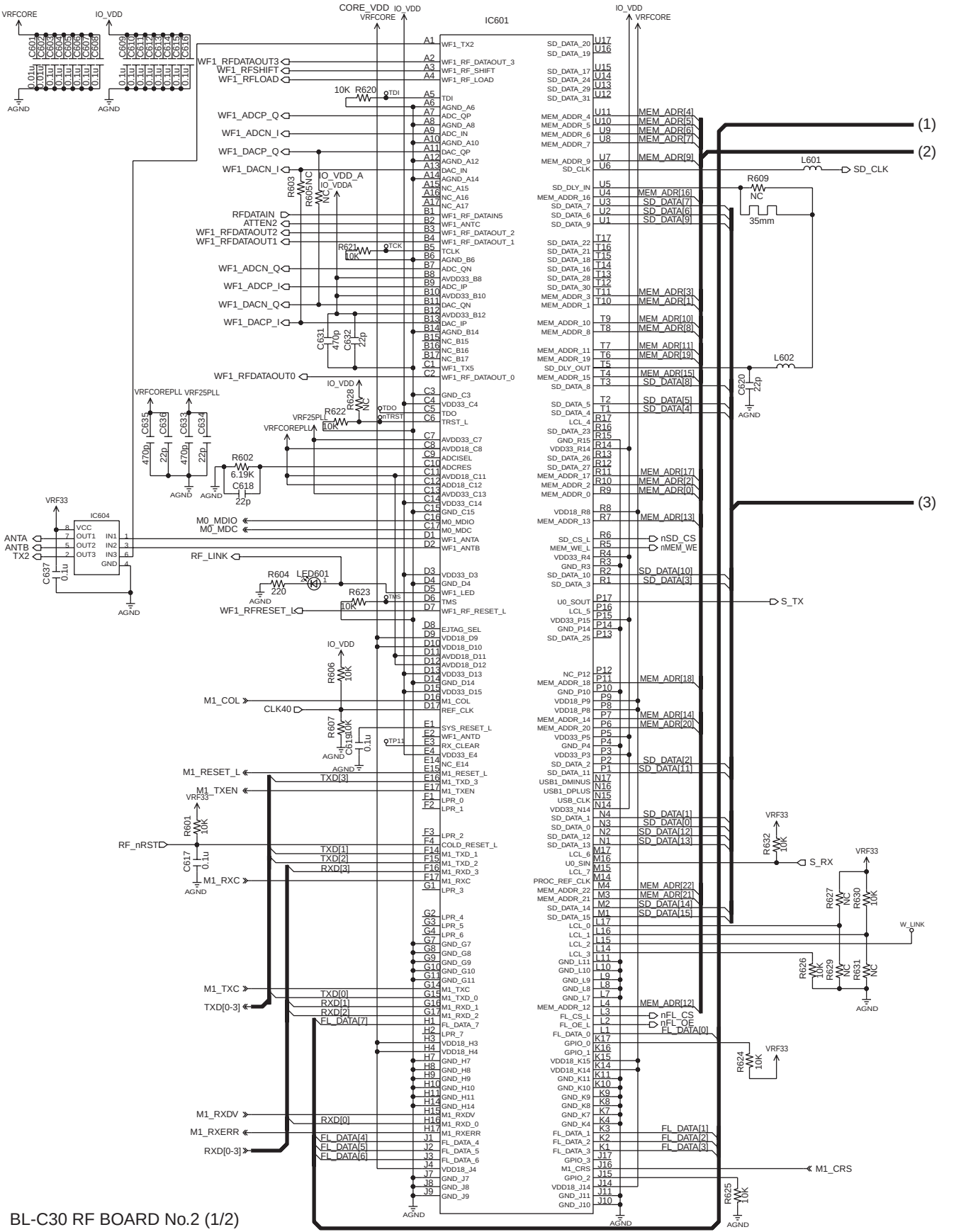
Measurement Conditions (Heat Source Temperature: 40℃
Set Distance: 10cm
Moving Velocity: 300mm/sec)

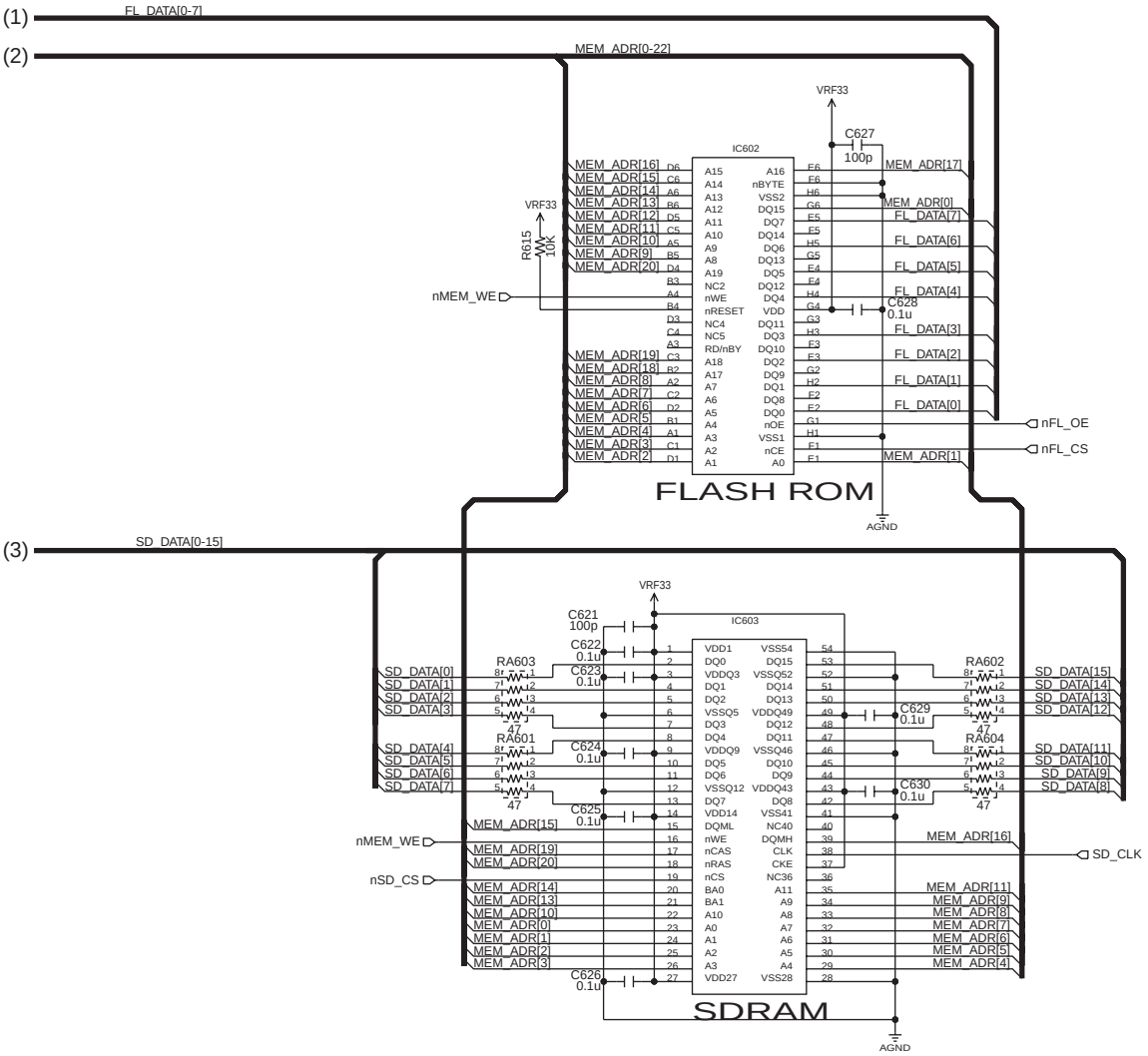


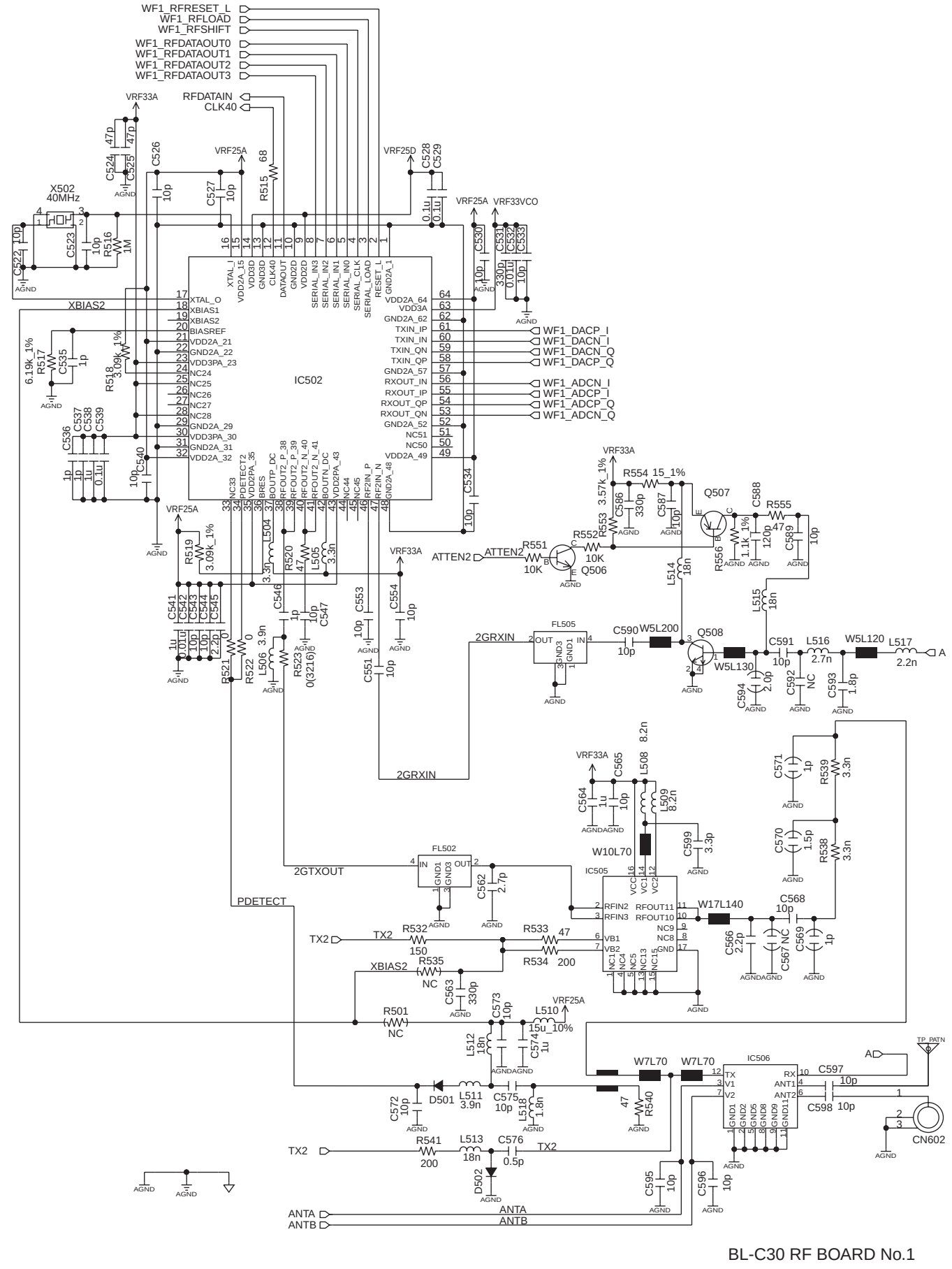
BL-C30 RF BOARD No.3 (1/2)

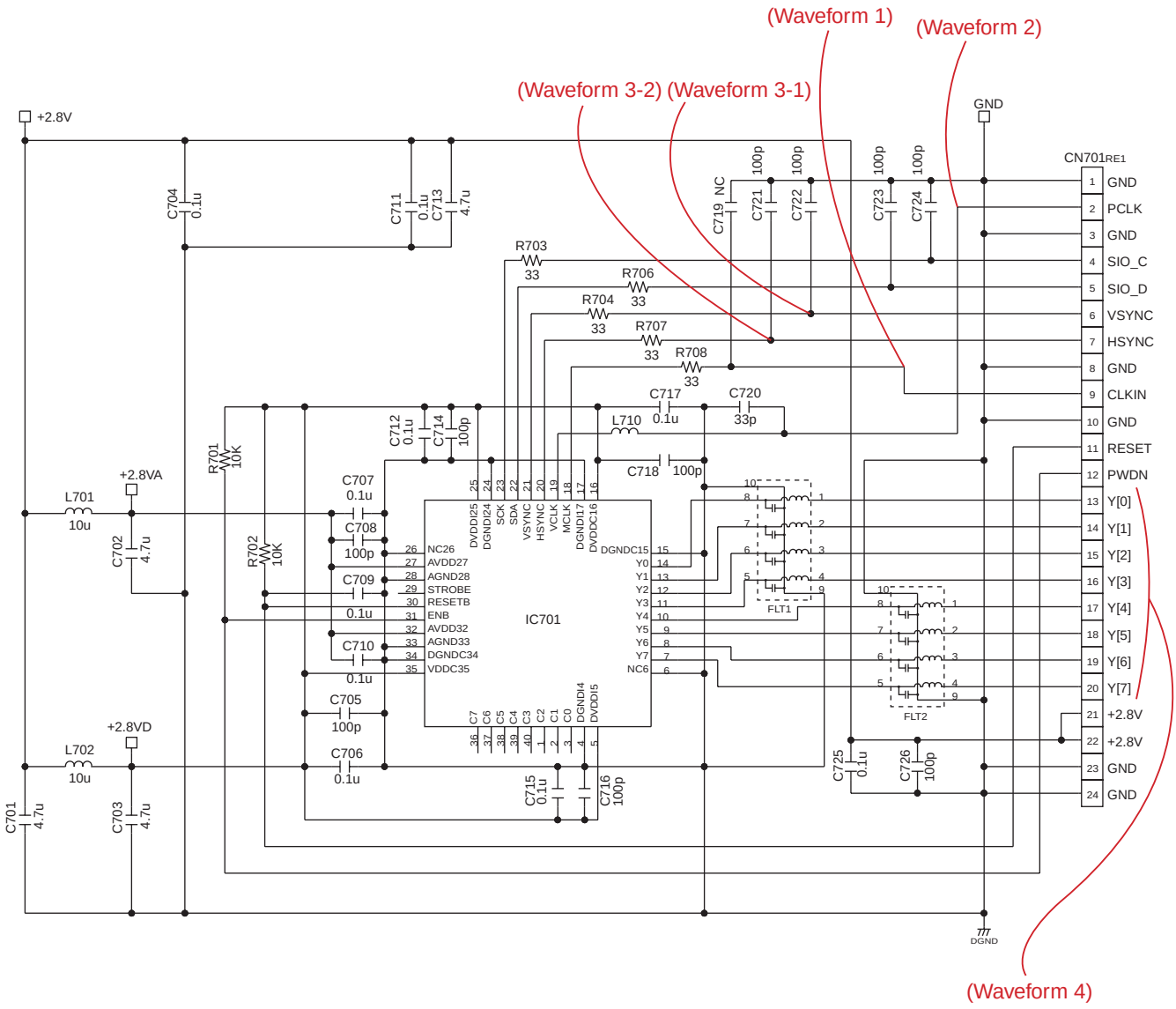

(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
C671
0.1u
LAN_RXN
R667
56.2 1%
C668
4.0p
C670
0.1u
AGND
R664
10.0K 1%
R668
56.2 1%
C672
0.1u
LAN_RXP
C673
0.1u
LAN_TXN
R672
51.1 1%
120nH
1652
R673
51.1 1%
C674
0.1u
LAN_TXP
PHYCP
C666
0.1u
R665
1.5K 1%
R666
2.0K 1%
C667
1000p
C669
0.1u
AGND

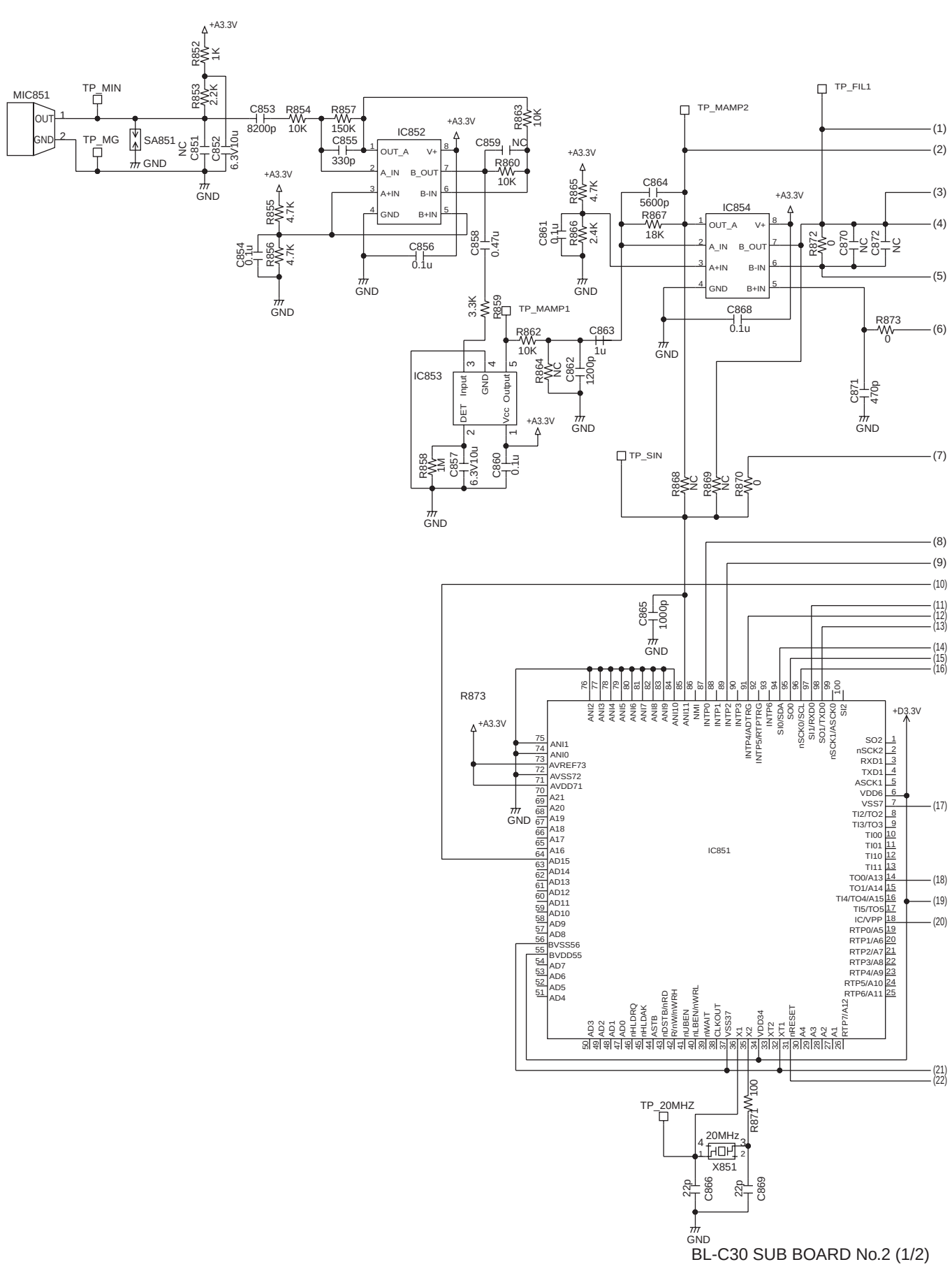

+3.3VM
C683
2.2u
C688
0.1u
CN601
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
RF_nRST
Q651
S_RX
R674
33
Q652
R678
33
AGND
LAN_TXN
LAN_TXP
R680
ETHER_LINK
R679
33
S_TX
LAN_RXP
LAN_RXN
AGND


IC601
VRFCORE
IO_VDD
CORE_VDD
AGND
WF1_RFDATAOUT3
WF1_RFSHIFT
WF1_RFLOAD
WF1_ADCP_Q
WF1_ADCN_I
WF1_DACP_Q
WF1_DACN_I
RFDATAIN
ATTEN2
WF1_RFDATAOUT2
WF1_RFDATAOUT1
WF1_ADCN_Q
WF1_ADCP_I
WF1_DACN_Q
WF1_DACP_I
WF1_RFDATAOUT0
M0_MDIO
M0_MDC
RF_LINK
WF1_RFRESET_L
M1_COL
CLK40
M1_RESET_L
M1_TXEN
RF_nRST
M1_RXC
M1_TXC
TXD[0-3]
M1_RXDV
M1_RXERR
RXD[0-3]
ANTA
ANTB
TX2
S_TX
S_RX
W_LINK
nSD_CS
nMEM_WE
nFL_CS
nFL_OE
M1_CRS
SD_CLK
IC604
VRF33
VRFCOREPLL
VRF25PLL
(1)
(2)
(3)
BL-C30 RF BOARD No.2 (1/2)

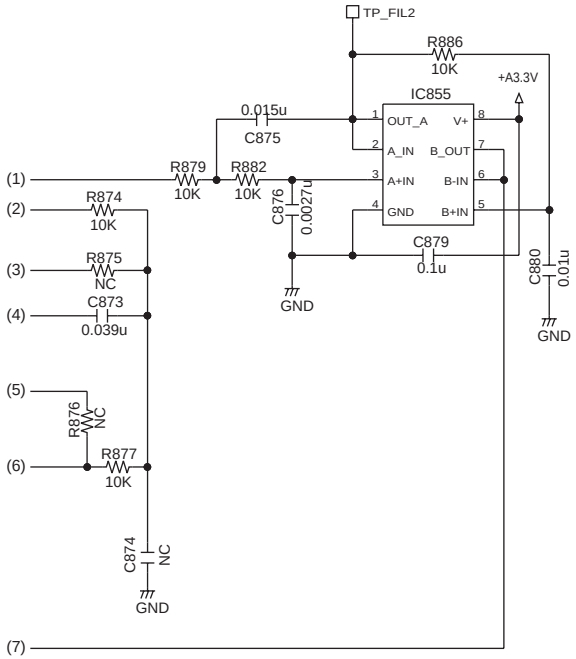

(1)
FL_DATA[0-7]
(2)
MEM_ADR[0-22]
VRF33
C627
100p
IC602
MEM_ADR[16]
MEM_ADR[15]
MEM_ADR[14]
MEM_ADR[13]
MEM_ADR[12]
MEM_ADR[11]
MEM_ADR[10]
MEM_ADR[9]
MEM_ADR[20]
MEM_ADR[19]
MEM_ADR[18]
MEM_ADR[8]
MEM_ADR[7]
MEM_ADR[6]
MEM_ADR[5]
MEM_ADR[4]
MEM_ADR[3]
MEM_ADR[2]
A15 A16
A14 nBYTE
A13 VSS2
A12 DQ15
A11 DQ7
A10 DQ14
A9 DQ6
A8 DQ13
A19 DQ5
NC2 DQ12
nWE DQ4
nRESET VDD
NC4 DQ11
NC5 DQ3
RD/nBY DQ10
A18 DQ2
A17 DQ9
A7 DQ1
A6 DQ8
A5 DQ0
A4 nOE
A3 VSS1
A2 nCE
A1 A0
MEM_ADR[17]
MEM_ADR[0]
FL_DATA[7]
FL_DATA[6]
FL_DATA[5]
FL_DATA[4]
FL_DATA[3]
FL_DATA[2]
FL_DATA[1]
FL_DATA[0]
MEM_ADR[1]
VRF33
R615
10K
nMEM_WE
C628
0.1u
nFL_OE
nFL_CS
FLASH ROM
AGND
(3)
SD_DATA[0-15]
VRF33
C621
100p
IC603
C622
0.1u
C623
0.1u
C624
0.1u
C625
0.1u
C626
0.1u
C629
0.1u
C630
0.1u
RA603
RA601
RA602
RA604
47
SD_DATA[0]
SD_DATA[1]
SD_DATA[2]
SD_DATA[3]
SD_DATA[4]
SD_DATA[5]
SD_DATA[6]
SD_DATA[7]
SD_DATA[15]
SD_DATA[14]
SD_DATA[13]
SD_DATA[12]
SD_DATA[11]
SD_DATA[10]
SD_DATA[9]
SD_DATA[8]
VDD1 VSS54
DQ0 DQ15
VDDQ3 VSSQ52
DQ1 DQ14
DQ2 DQ13
VSSQ5 VDDQ49
DQ3 DQ12
DQ4 DQ11
VDDQ9 VSSQ46
DQ5 DQ10
DQ6 DQ9
VSSQ12 VDDQ43
DQ7 DQ8
VDD14 VSS41
DQML NC40
nWE DQMH
nCAS CLK
nRAS CKE
nCS NC36
BA0 A11
BA1 A9
A10 A8
A0 A7
A1 A6
A2 A5
A3 A4
VDD27 VSS28
MEM_ADR[15]
MEM_ADR[19]
MEM_ADR[20]
MEM_ADR[14]
MEM_ADR[13]
MEM_ADR[10]
MEM_ADR[0]
MEM_ADR[1]
MEM_ADR[2]
MEM_ADR[3]
MEM_ADR[16]
MEM_ADR[11]
MEM_ADR[9]
MEM_ADR[8]
MEM_ADR[7]
MEM_ADR[6]
MEM_ADR[5]
MEM_ADR[4]
nMEM_WE
nSD_CS
SD_CLK
SDRAM
AGND

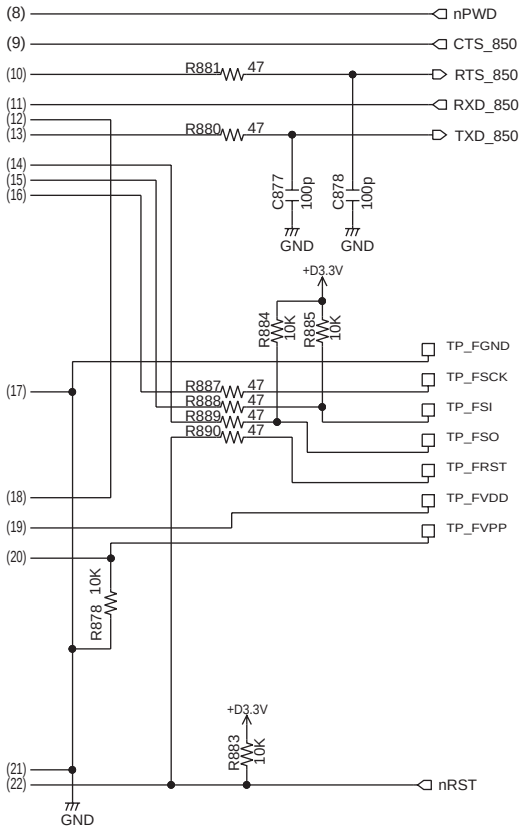

WF1_RFRESET_L
WF1_RFLOAD
WF1_RFSHIFT
WF1_RFDATAOUT0
WF1_RFDATAOUT1
WF1_RFDATAOUT2
WF1_RFDATAOUT3
RFDATAIN
CLK40
VRF33A
VRF25A
VRF25D
VRF33VCO
X502
40MHz
XBIAS2
IC502
WF1_DACP_I
WF1_DACN_I
WF1_DACN_Q
WF1_DACP_Q
WF1_ADCN_I
WF1_ADCP_I
WF1_ADCP_Q
WF1_ADCN_Q
ATTEN2
2GRXIN
2GRXIN
2GTXOUT
PDETECT
TX2
ANTA
ANTB
FL505
FL502
IC505
IC506
Q507
Q506
Q508
W5L200
W5L130
W5L120
W10L70
W17L140
W7L70
W7L70
D501
D502
CN602
TP_PATN
BL-C30 RF BOARD No.1

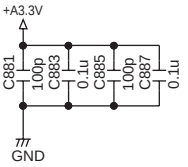

(Waveform 1)
(Waveform 2)
(Waveform 3-2)
(Waveform 3-1)
(Waveform 4)
+2.8V
GND
CN701RE1
1 GND
2 PCLK
3 GND
4 SIO_C
5 SIO_D
6 VSYNC
7 HSYNC
8 GND
9 CLKIN
10 GND
11 RESET
12 PWDN
13 Y[0]
14 Y[1]
15 Y[2]
16 Y[3]
17 Y[4]
18 Y[5]
19 Y[6]
20 Y[7]
21 +2.8V
22 +2.8V
23 GND
24 GND
IC701
FLT1
FLT2
DGND

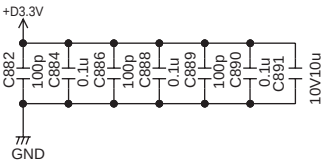


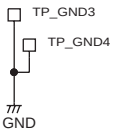
BL-C30 SUB BOARD No.2 (1/2)

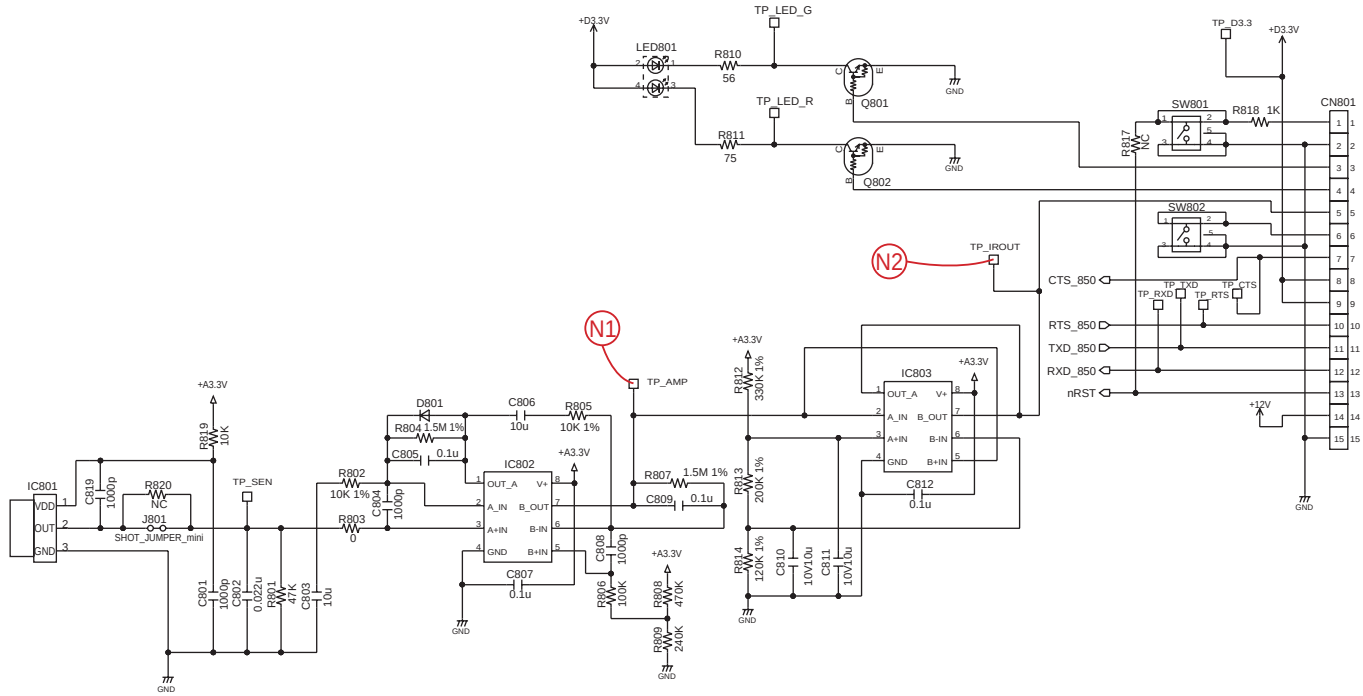

TP_FIL2
R886
10K
+A3.3V
IC855
0.015u
C875
OUT_A
V+
A_IN
B_OUT
A+IN
B-IN
GND
B+IN
R879
10K
R882
10K
C876
0.0027u
C879
0.1u
C880
0.01u
GND
(1)
(2)
R874
10K
(3)
R875
NC
(4)
C873
0.039u
(5)
R876
NC
(6)
R877
10K
C874
NC
GND
(7)

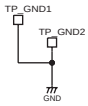

(8)
nPWD
(9)
CTS_850
(10)
R881
47
RTS_850
(11)
RXD_850
(12)
(13)
R880
47
TXD_850
(14)
(15)
(16)
C877
100p
C878
100p
GND
GND
+D3.3V
R884
10K
R885
10K
TP_FGND
TP_FSCK
TP_FSI
TP_FSO
TP_FRST
TP_FVDD
TP_FVPP
(17)
R887
47
R888
47
R889
47
R890
47
(18)
(19)
(20)
R878
10K
+D3.3V
R883
10K
(21)
(22)
nRST
GND


+A3.3V
C881
100p
C883
0.1u
C885
100p
C887
0.1u
GND

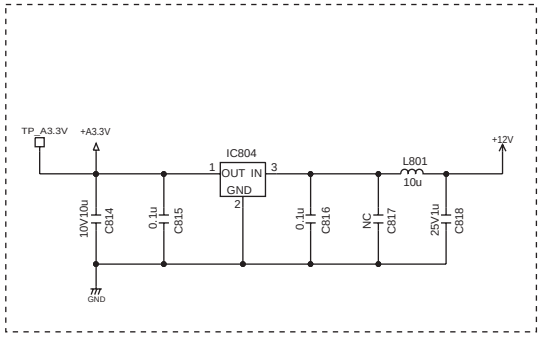

+D3.3V
C882
100p
C884
0.1u
C886
100p
C888
0.1u
C889
100p
C890
0.1u
C891
10V10u
GND

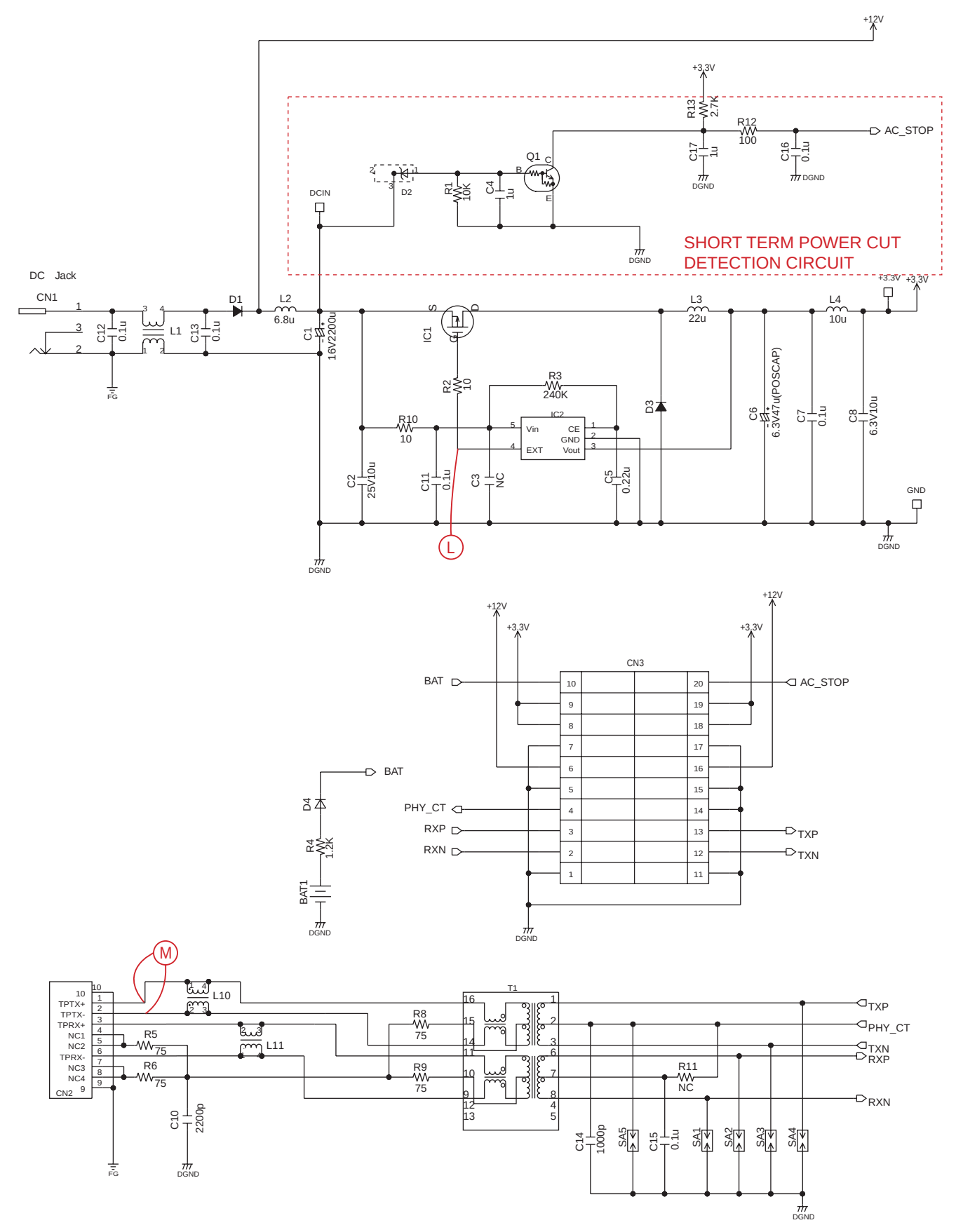

TP_GND3
TP_GND4
GND



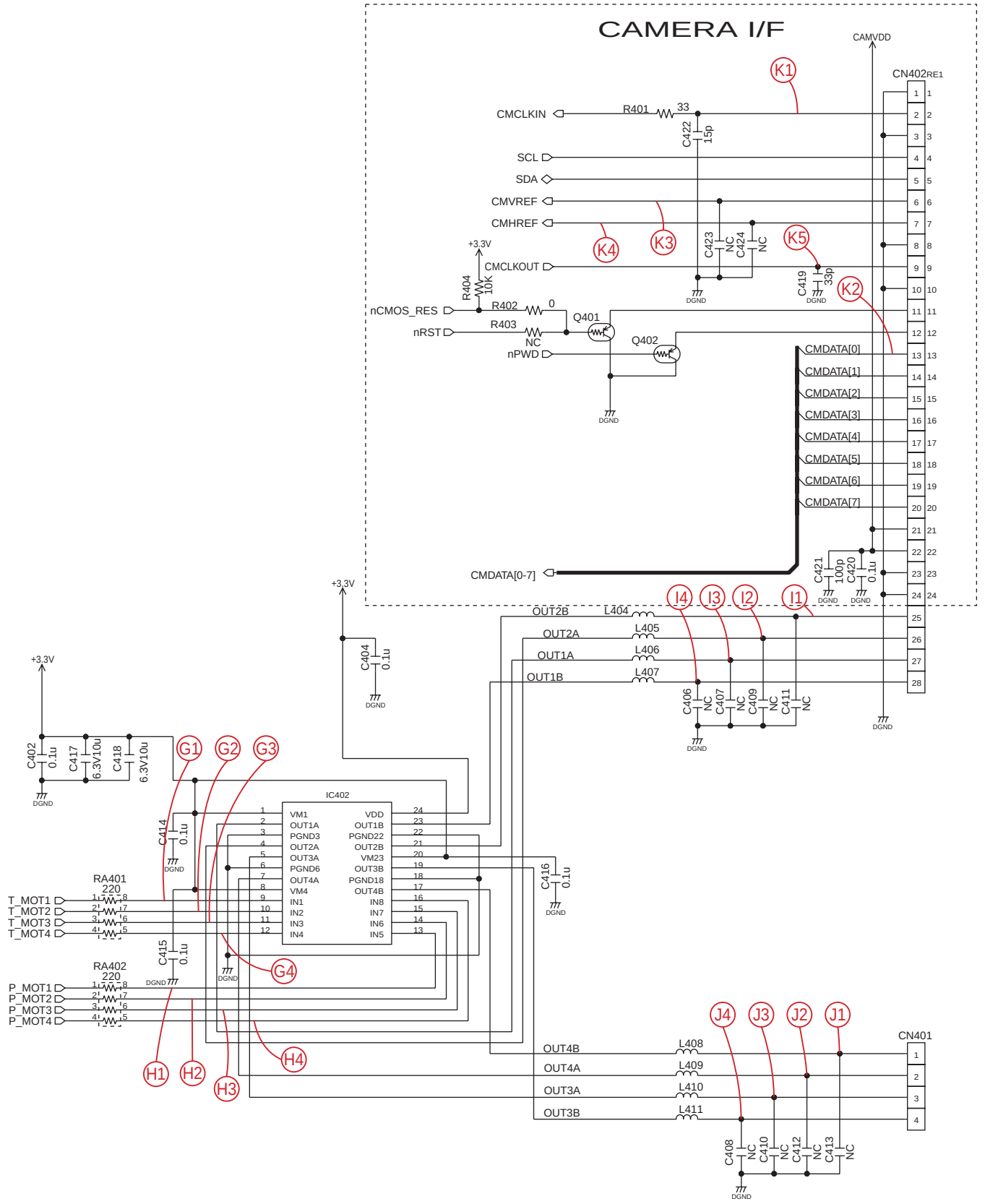


ANALOG POWER SUPPLY CIRCUIT

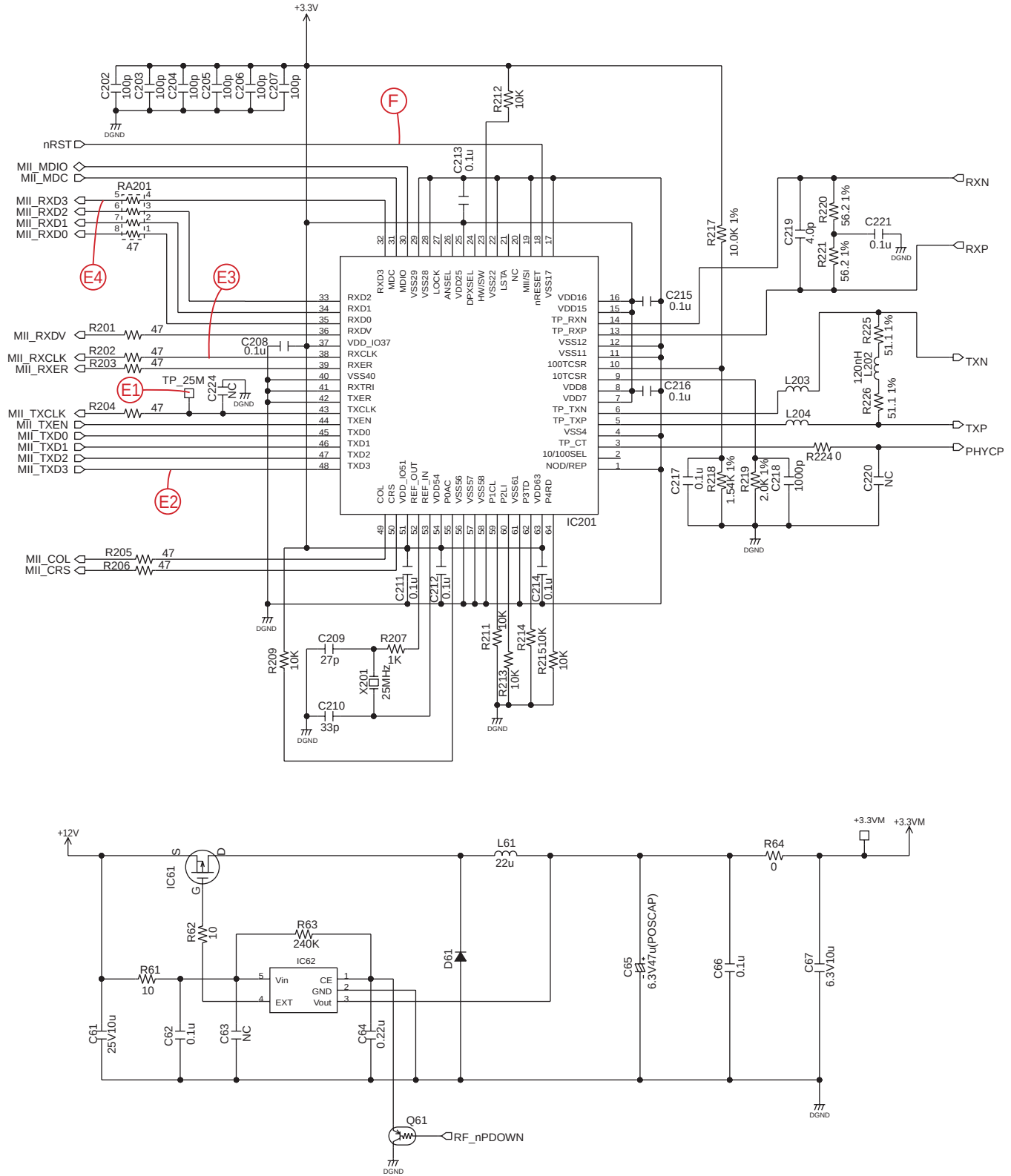




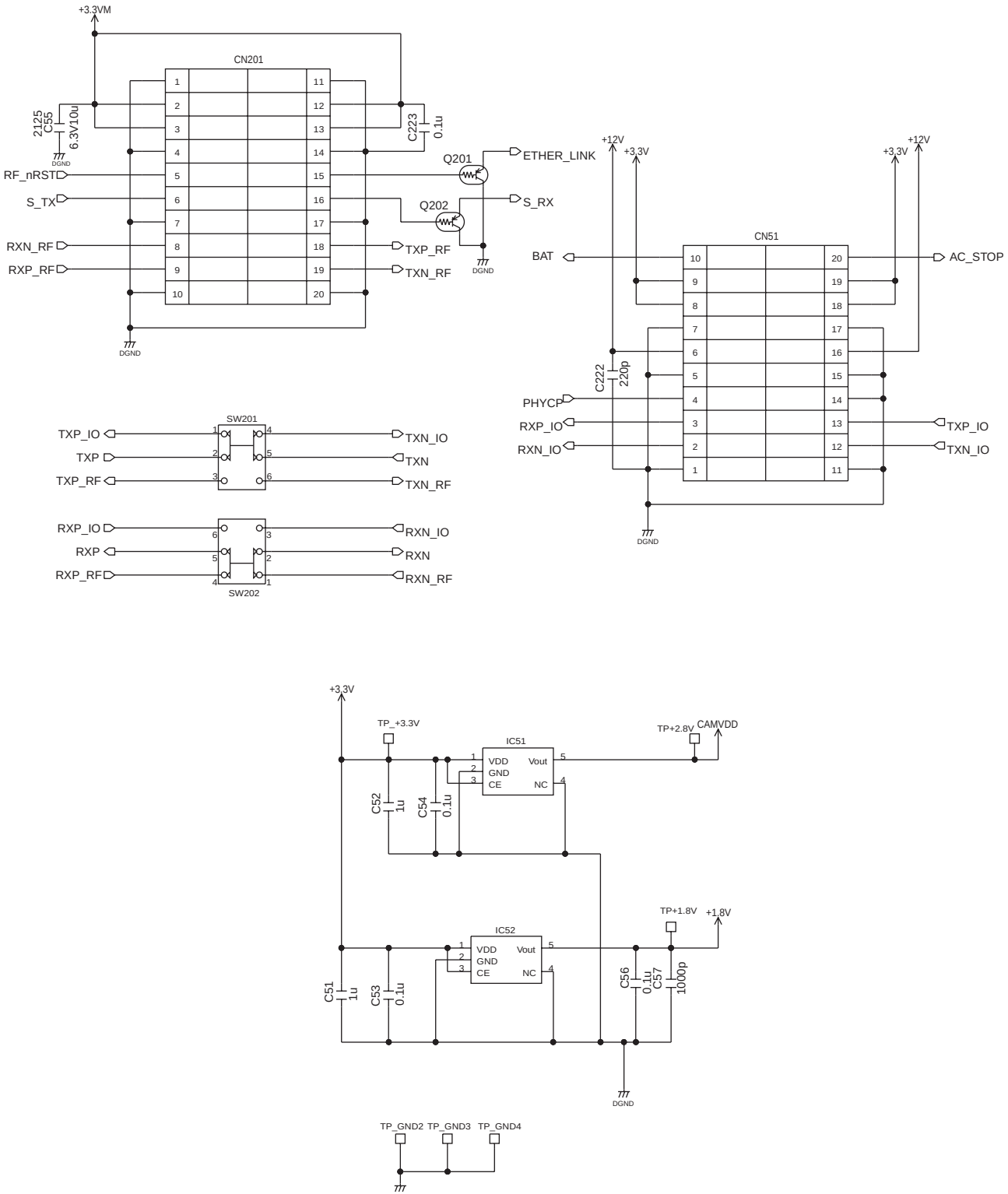
BL-C30 I/O BOARD

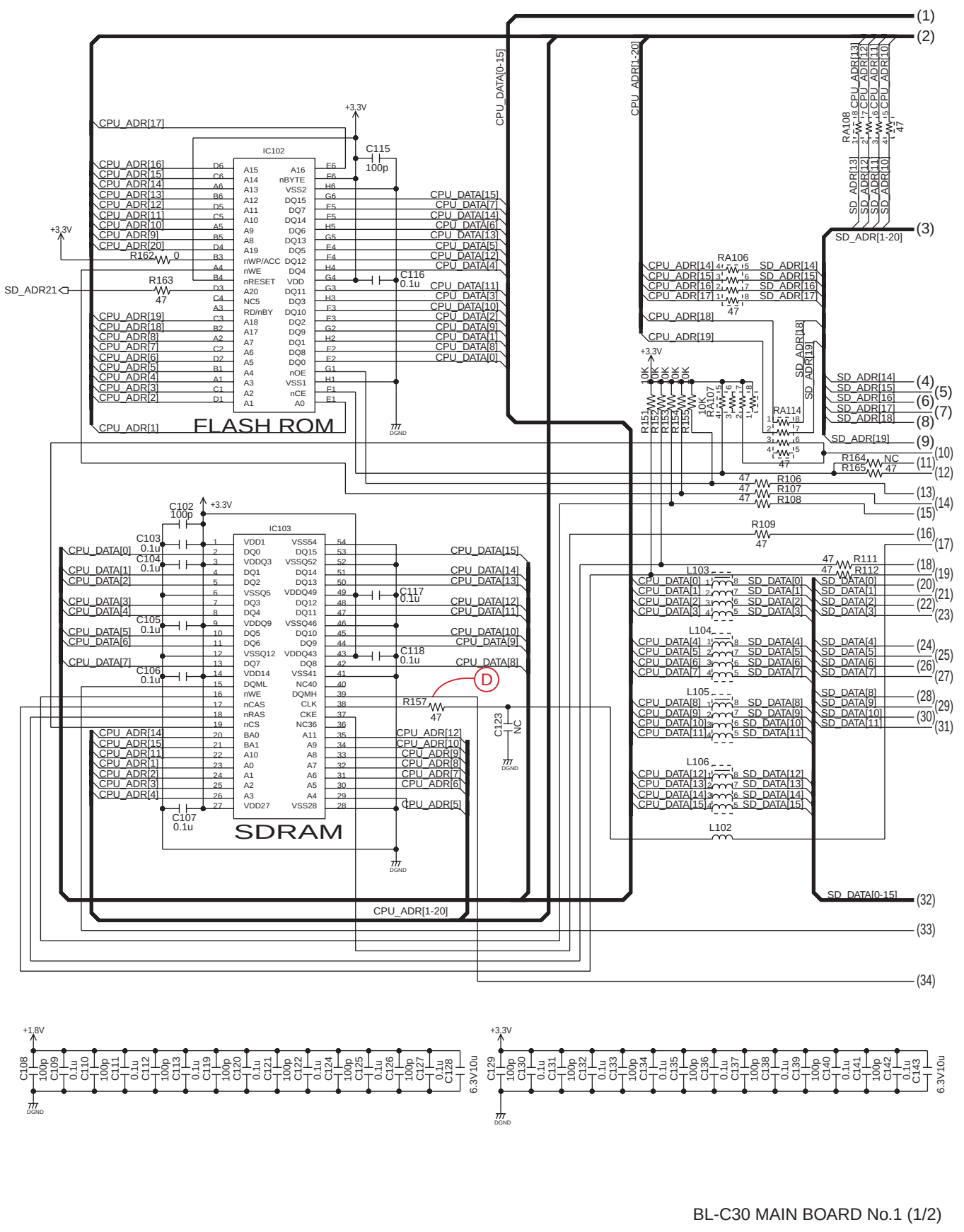


BL-C30 MAIN BOARD No.3

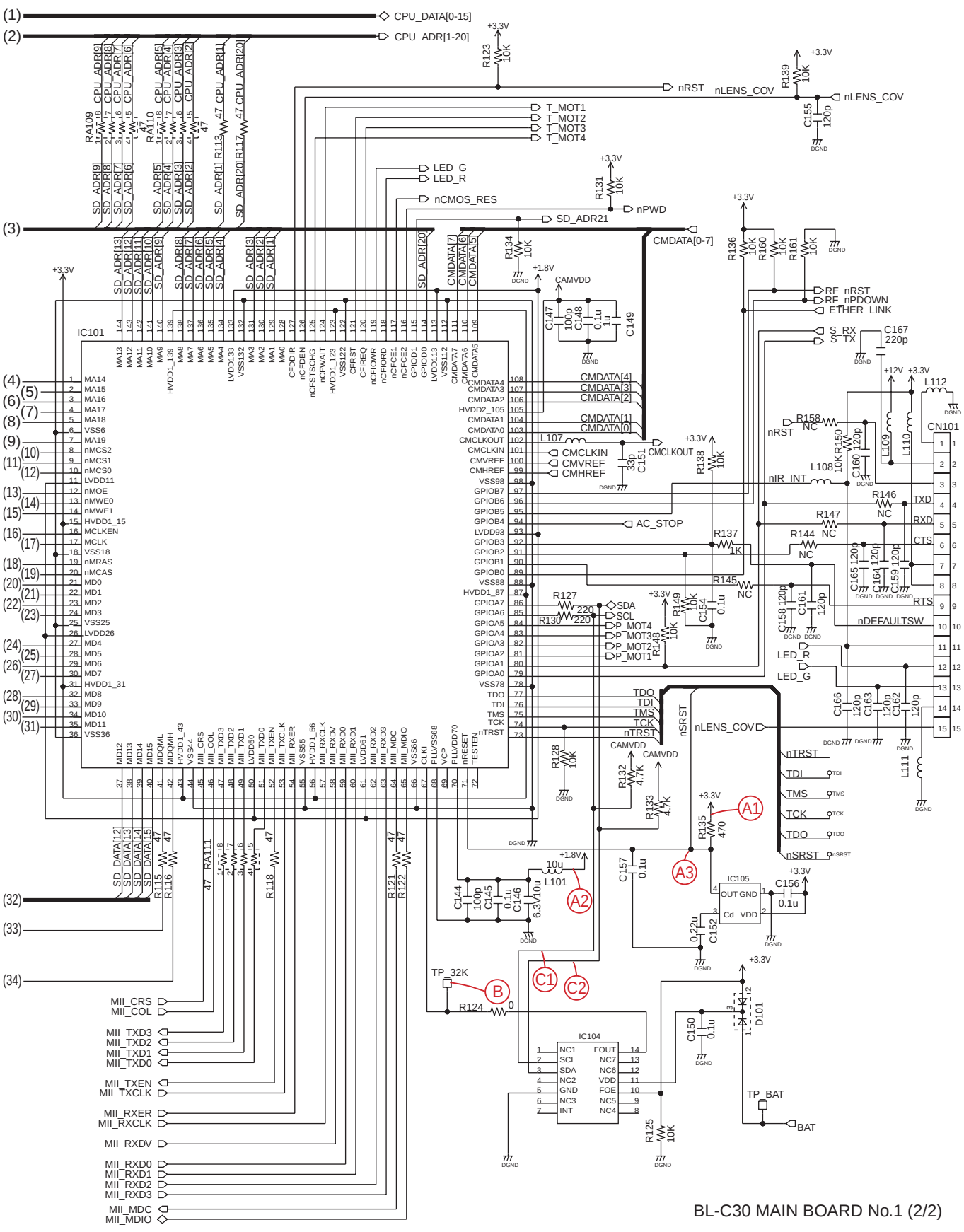

+3.3V
C202 100p
C203 100p
C204 100p
C205 100p
C206 100p
C207 100p
DGND
F
R212 10K
nRST
MII_MDIO
MII_MDC
C213 0.1u
RA201
MII_RXD3
MII_RXD2
MII_RXD1
MII_RXD0
47
E4
E3
E2
E1
IC201
RXD3 MDC MDIO VSS29 VSS28 LOCK ANSEL VDD25 DPXSEL HW/SW VSS22 LSTA NC MII/SI nRESET VSS17
RXD2 RXD1 RXD0 RXDV VDD_IO37 RXCLK RXER VSS40 RXTRI TXER TXCLK TXEN TXD0 TXD1 TXD2 TXD3
VDD16 VDD15 TP_RXN TP_RXP VSS12 VSS11 100TCSR 10TCSR VDD8 VDD7 TP_TXN TP_TXP VSS4 TP_CT 10/100SEL NOD/REP
COL CRS VDD_IO51 REF_OUT REF_IN VDD54 P0AC VSS56 VSS57 VSS58 P1CL P2LI VSS61 P3TD VDD63 P4RD
MII_RXDV R201 47
MII_RXCLK R202 47
MII_RXER R203 47
C208 0.1u
TP_25M
C224 NC
DGND
MII_TXCLK R204 47
MII_TXEN
MII_TXD0
MII_TXD1
MII_TXD2
MII_TXD3
MII_COL R205 47
MII_CRS R206 47
C211 0.1u
C212 0.1u
C214 0.1u
C209 27p
R207 1K
X201 25MHz
C210 33p
R209 10K
R211 10K
R213 10K
R214 10K
R215 10K
C215 0.1u
C216 0.1u
R217 10.0K 1%
C219 4.0p
R220 56.2 1%
R221 56.2 1%
C221 0.1u
RXN
RXP
L203
L204
120nH L202
R225 51.1 1%
R226 51.1 1%
TXN
TXP
PHYCP
R224 0
C217 0.1u
R218 1.54K 1%
R219 2.0K 1%
C218 1000p
C220 NC

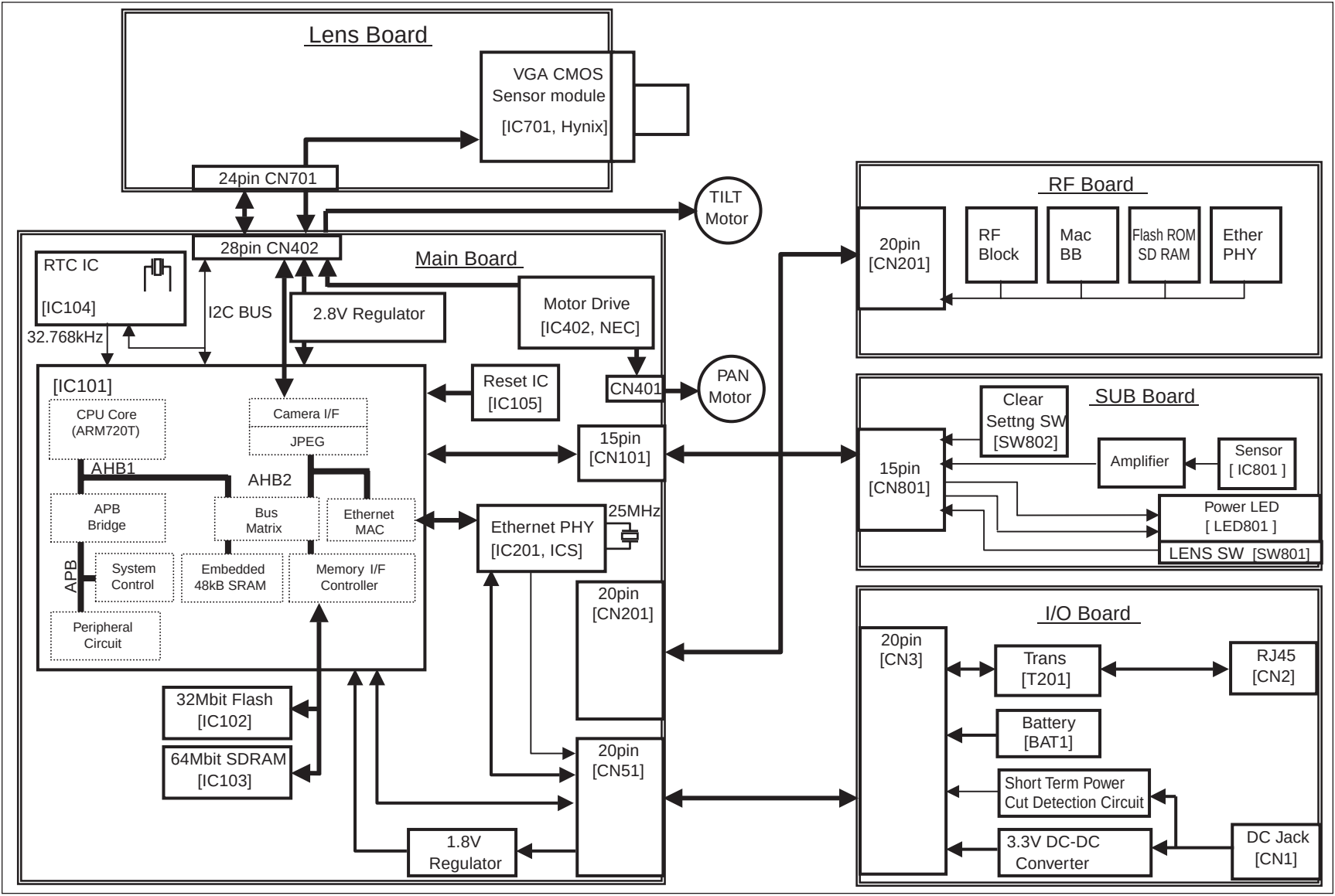
+12V
IC61
S
D
G
L61 22u
R64 0
+3.3VM
+3.3VM
R62 10
R63 240K
IC62
Vin
CE
GND
EXT
Vout
R61 10
D61
C65 6.3V47u(POSCAP)
C66 0.1u
C67 6.3V10u
C61 25V10u
C62 0.1u
C63 NC
C64 0.22u
DGND
Q61
RF_nPDOWN


+3.3VM
CN201
C55 2125 6.3V10u
C223 0.1u
DGND
RF_nRSTD
S_TX
RXN_RF
RXP_RF
Q201
Q202
ETHER_LINK
S_RX
TXP_RF
TXN_RF
SW201
TXP_IO
TXP
TXP_RF
TXN_IO
TXN
TXN_RF
RXP_IO
RXP
RXP_RF
RXN_IO
RXN
RXN_RF
SW202
+12V
+3.3V
CN51
BAT
AC_STOP
C222 220p
PHYCP
RXP_IO
RXN_IO
TXP_IO
TXN_IO
+3.3V
TP_+3.3V
TP+2.8V
CAMVDD
IC51
VDD
GND
CE
Vout
NC
C52 1u
C54 0.1u
TP+1.8V
+1.8V
IC52
C51 1u
C53 0.1u
C56 0.1u
C57 1000p
TP_GND2
TP_GND3
TP_GND4



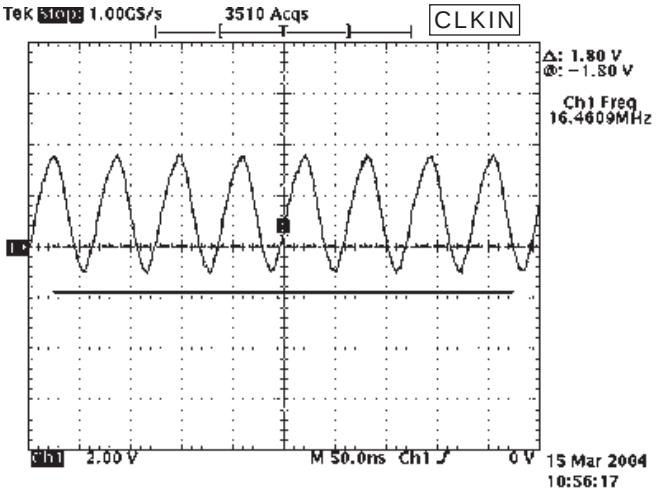
BL-C30 MAIN BOARD No.1 (1/2)


CPU_DATA[0-15]
CPU_ADR[1-20]
nRST
nLENS_COV
T_MOT1
T_MOT2
T_MOT3
T_MOT4
LED_G
LED_R
nCMOS_RES
nPWD
SD_ADR21
CMDATA[0-7]
IC101
CAMVDD
CMCLKIN
CMVREF
CMHREF
CMCLKOUT
AC_STOP
SDA
SCL
P_MOT4
P_MOT3
P_MOT2
P_MOT1
TDO
TDI
TMS
TCK
nTRST
nSRST
RF_nRST
RF_nPDOWN
ETHER_LINK
S_RX
S_TX
nIR_INT
TXD
RXD
CTS
RTS
nDEFAULTSW
IC105
IC104
TP_32K
TP_BAT
BAT
MII_CRS
MII_COL
MII_TXD3
MII_TXD2
MII_TXD1
MII_TXD0
MII_TXEN
MII_TXCLK
MII_RXER
MII_RXCLK
MII_RXDV
MII_RXD0
MII_RXD1
MII_RXD2
MII_RXD3
MII_MDC
MII_MDIO
BL-C30 MAIN BOARD No.1 (2/2)

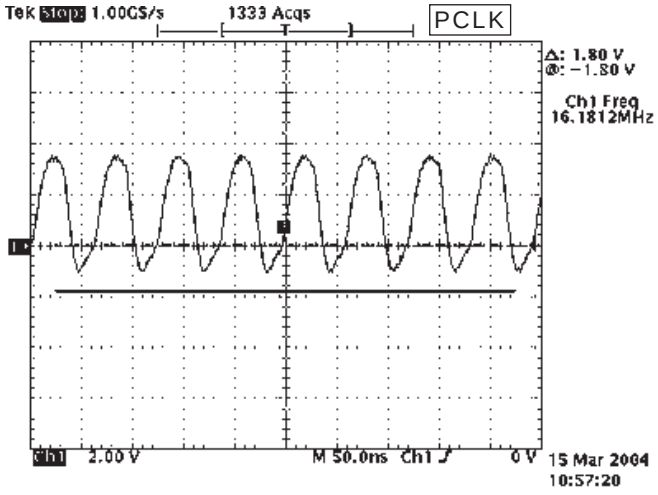


BL-C30C BLOCK DIAGRAM

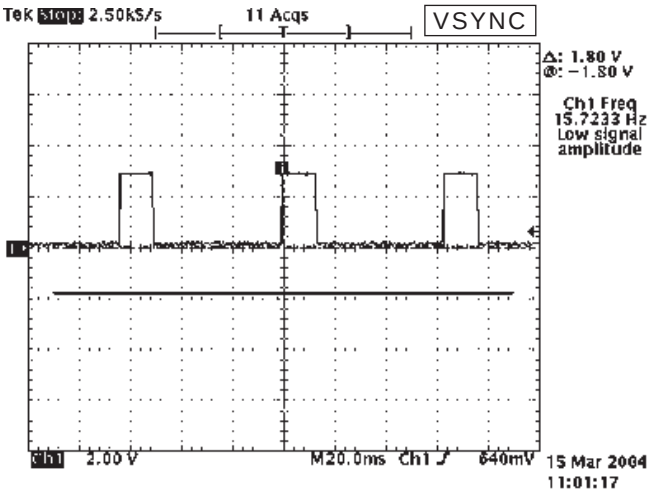
(Waveform 1)



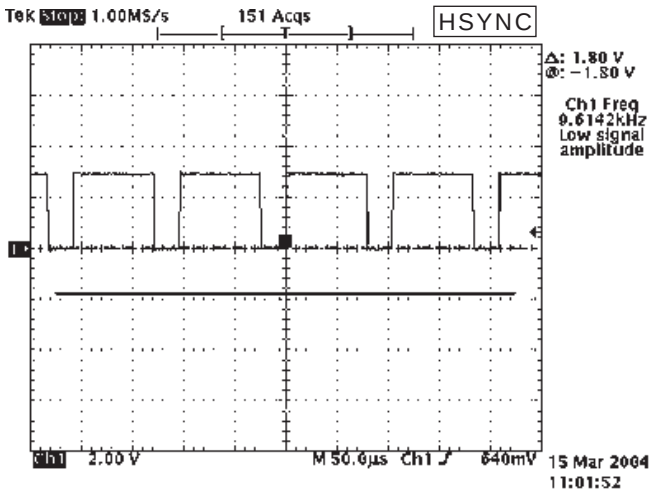
(Waveform 2)



(Waveform 3-1)



(Waveform 3-2)



(Waveform 4)